G1000® Integrated Flight Deck

Cockpit Reference Guide for the Piper PA-46 Mirage/Matrix

GARMIN®

This manual reflects the operation of System Software version 0720.14 or later for the Piper PA-46 Mirage and Matrix. Some differences in operation may be observed when comparing the information in this manual to earlier or later software versions.

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WARNING: *Navigation and terrain separation must NOT be predicated upon the use of the terrain avoidance feature. The terrain avoidance feature is NOT intended to be used as a primary reference for terrain avoidance and does not relieve the pilot from the responsibility of being aware of surroundings during flight. The terrain avoidance feature is only to be used as an aid for terrain avoidance. Terrain data is obtained from third party sources. Garmin is not able to independently verify the accuracy of the terrain data.*

WARNING: *The displayed minimum safe altitudes (MSAs) are only advisory in nature and should not be relied upon as the sole source of obstacle and terrain avoidance information. Always refer to current aeronautical charts for appropriate minimum clearance altitudes.*

WARNING: *The altitude calculated by the GPS receivers is geometric height above Mean Sea Level and could vary significantly from the altitude displayed by pressure altimeters, such as the GDC 74A Air Data Computer, or other altimeters in the aircraft. GPS altitude should never be used for vertical navigation. Always use pressure altitude displayed by the PFD or other pressure altimeters in aircraft.*

WARNING: *Do not use outdated database information. Databases used in the system must be updated regularly in order to ensure that the information remains current. Pilots using any outdated database do so entirely at their own risk.*

WARNING: *Do not use basemap (land and water data) information for primary navigation. Basemap data is intended only to supplement other approved navigation data sources and should be considered as an aid to enhance situational awareness.*

WARNING: *Traffic information shown on system displays is provided as an aid in visually acquiring traffic. Pilots must maneuver the aircraft based only upon ATC guidance or positive visual acquisition of conflicting traffic.*

WARNING: *Do not use data link weather products (e.g., SiriusXM Satellite Weather, GFDS World Wide Weather, or FIS-B) for hazardous weather penetration. Weather information provided by these products is aged by up to several minutes and may not depict actual weather conditions as they currently appear.*

WARNING: *NEXRAD weather data is to be used for long-range planning purposes only. Due to inherent delays in data transmission and the relative age of the data, NEXRAD weather data should not be used for short-range weather avoidance.*

WARNING: *The G1000 Integrated Flight Deck, as installed in the Mirage/Matrix aircraft, has a very high degree of functional integrity. However, the pilot must recognize that providing monitoring and/or self-test capability for all conceivable system failures is not practical. Although unlikely, it may be possible for erroneous operation to occur without a fault indication shown by the system. It is thus the responsibility of the pilot to detect such an occurrence by means of cross-checking with all redundant or correlated information available in the cockpit.*

WARNING: *For safety reasons, system operational procedures must be learned on the ground.*

WARNING: *The United States government operates the Global Positioning System and is solely responsible for its accuracy and maintenance. The GPS system is subject to changes which could affect the accuracy and performance of all GPS equipment. Portions of the system utilize GPS as a precision electronic NAVigation AID (NAVAID). Therefore, as with all NAVAIDs, information presented by the system can be misused or misinterpreted and, therefore, become unsafe.*

WARNING: *To reduce the risk of unsafe operation, carefully review and understand all aspects of the G1000 Pilot's Guide documentation and the Mirage/Matrix Airplane Flight Manual. Thoroughly practice basic operation prior to actual use. During flight operations, carefully compare indications from the system to all available navigation sources, including the information from other NAVAIDs, visual sightings, charts, etc. For safety purposes, always resolve any discrepancies before continuing navigation.*

WARNING: *The illustrations in this guide are only examples. Never use the system to attempt to penetrate a thunderstorm. Both the FAA Advisory Circular, Subject: Thunderstorms, and the Aeronautical Information Manual (AIM) recommend avoiding "by at least 20 miles any thunderstorm identified as severe or giving an intense radar echo."*

WARNING: *Lamp(s) inside this product may contain mercury (HG) and must be recycled or disposed of according to local, state, or federal laws. For more information, refer to our website at www.garmin.com/aboutGarmin/environment/disposal.jsp.*

WARNING: *Because of variation in the earth's magnetic field, operating the system within the following areas could result in loss of reliable attitude and heading indications. North of 72° North latitude at all longitudes. South of 70° South latitude at all longitudes. North of 65° North latitude between longitude 75° W and 120° W. (Northern Canada). North of 70° North latitude between longitude 70° W and 128° W. (Northern Canada). North of 70° North latitude between longitude 85° E and 114° E. (Northern Russia). South of 55° South latitude between longitude 120° E and 165° E. (Region south of Australia and New Zealand).*

WARNING: *Do not use GPS to navigate to any active waypoint identified as a 'NON WGS84 WPT' by a system message. 'NON WGS84 WPT' waypoints are derived from an unknown map reference datum that may be incompatible with the map reference datum used by GPS (known as WGS84) and may be positioned in error as displayed.*

CAUTION: *The PFD and MFD displays use a lens coated with a special anti-reflective coating that is very sensitive to skin oils, waxes, and abrasive cleaners. CLEANERS CONTAINING AMMONIA WILL HARM THE ANTI-REFLECTIVE COATING. It is very important to clean the lens using a clean, lint-free cloth and an eyeglass lens cleaner that is specified as safe for anti-reflective coatings.*

CAUTION: *The system does not contain any user-serviceable parts. Repairs should only be made by an authorized Garmin service center. Unauthorized repairs or modifications could void both the warranty and the pilot's authority to operate this device under FAA/FCC regulations.*

NOTE: *All visual depictions contained within this document, including screen images of the panel and displays, are subject to change and may not reflect the most current system and databases. Depictions of equipment may differ slightly from the actual equipment.*

NOTE: *This device complies with part 15 of the FCC Rules. Operation is subject to the following two conditions: (1) this device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.*

NOTE: *The data contained in the terrain and obstacle databases comes from government agencies. Garmin accurately processes and cross-validates the data, but cannot guarantee the accuracy and completeness of the data.*

NOTE: *This product, its packaging, and its components contain chemicals known to the State of California to cause cancer, birth defects, or reproductive harm. This notice is being provided in accordance with California's Proposition 65. If you have any questions or would like additional information, please refer to our web site at www.garmin.com/prop65.*

NOTE: *Interference from GPS repeaters operating inside nearby hangars can cause an intermittent loss of attitude and heading displays while the aircraft is on the ground. Moving the aircraft more than 100 yards away from the source of the interference should alleviate the condition.*

NOTE: *Use of polarized eyewear may cause the flight displays to appear dim or blank.*

NOTE: *The purpose of this Cockpit Reference Guide is to provide the pilot a resource with which to find operating instructions on the major features of the G1000 system more easily. It is not intended to be a comprehensive operating guide. Complete operating procedures for the system are found in the G1000 Integrated Flight Deck Pilot's Guide.*

Part Number	Change Summary
190-01107-00	Initial release at GDU 10.01
190-01107-01	Added Split COM capability
190-01107-02	Added GDU 12.01 Updated SiriusXM™ references Updated XM WX Satellite Weather product symbols Updated database loading procedure Added LEGEND, WX LGND and METAR softkeys Added MV DB discussion and loading procedures
190-01107-03	Added GFDS World Wide Weather Added Iridium Satellite Telephone and SMS Added Electronic Checklist procedures Added AC-U-KWIK Airport Directory references Updated SiriusXM references Updated message advisories Updated softkey maps

Revision	Date of Revision	Affected Pages	Description
A	March, 2013	All	Production release

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FLIGHT INSTRUMENTS

SELECTING THE ALTIMETER BAROMETRIC PRESSURE SETTING

Turn the **BARO** Knob to select the desired setting.

SELECTING STANDARD BAROMETRIC PRESSURE (29.92 IN HG)

1) Select the **PFD** Softkey to display the second-level softkeys.
2) Select the **STD BARO** Softkey.

CHANGE ALTIMETER BAROMETRIC PRESSURE SETTING UNITS

1) Select the **PFD** Softkey to display the second-level softkeys.
2) Select the **ALT UNIT** Softkey.
3) Select the **IN** Softkey to display the barometric pressure setting in inches of mercury (in Hg).

   Or:

   Select the **HPA** Softkey to display the barometric pressure setting in hectopascals.
4) Select the **BACK** Softkey to return to the top-level softkeys.

SYNCHRONIZING THE ALTIMETER BAROMETRIC PRESSURE SETTINGS

1) Select the AUX-SYSTEM SETUP Page on the MFD.
2) Press the **FMS** Knob to activate the cursor.
3) Turn the large **FMS** Knob to highlight BARO in the SYNCHRONIZATION Window.
4) Turn the small **FMS** Knob clockwise to ON or counterclockwise to OFF.

SYNCHRONIZE CDI

1) Select the AUX-SYSTEM SETUP Page on the MFD.
2) Press the **FMS** Knob to activate the cursor.
3) Turn the large **FMS** Knob to highlight CDI in SYNCHRONIZATION Window.
4) Turn the small **FMS** Knob clockwise to ON or counterclockwise to OFF.

CHANGE NAVIGATION SOURCES

1) Select the **CDI** Softkey to change from GPS to VOR1 or LOC1. This places the light blue tuning box over the NAV1 standby frequency in the upper left corner of the PFD.
2) Select the **CDI** Softkey again to change from VOR1 or LOC1 to VOR2 or LOC2. This places the light blue tuning box over the NAV2 standby frequency.
3) Select the **CDI** Softkey a third time to return to GPS.

ENABLE/DISABLE OBS MODE WHILE NAVIGATING WITH GPS

1) Select the **OBS** Softkey to select OBS Mode.
2) Turn the **CRS** Knob to select the desired course to/from the waypoint. Press the **CRS** Knob to slew the CDI Course Pointer to a course bearing directly to the waypoint.
3) Select the **OBS** Softkey again to disable OBS Mode.

GENERIC TIMER

1) Select the **TMR/REF** Softkey, then turn the large **FMS** Knob to select the time field (hh/mm/ss). Turn the **FMS** Knobs to set the desired time, then press the **ENT** Key. The UP/DOWN field is now highlighted.
2) Turn the small **FMS** Knob to display the UP/DOWN window. Turn the **FMS** Knob to select 'UP' or 'DOWN', then press the **ENT** Key. 'START?' is now highlighted.
3) Press the **ENT** Key to START, STOP, or RESET the timer (if the timer is counting DOWN, it will start counting UP after reaching zero). Press the **CLR** Key or the **TMR/REF** Softkey to remove the window.

CONFIGURE VSPEED BUGS INDIVIDUALLY

1) Select the **TMR/REF** Softkey.
2) Turn the large **FMS** Knob to highlight the desired Vspeed.
3) Use the small **FMS** Knob to change the Vspeed in 1-kt increments (when a speed has been changed from a default value, an asterisk appears next to the speed).

4) Press the **ENT** Key or turn the large **FMS** Knob to highlight the ON/OFF field.
5) Turn the small **FMS** Knob clockwise to ON or counterclockwise to OFF.
6) To remove the window, press the **CLR** Key or select the **TMR/REF** Softkey.

TURN VSPEED BUGS ON OR OFF BY CATEGORY

1) Select the **TMR/REF** Softkey.
2) Press the **MENU** Key.
3) Turn the **FMS** Knob to highlight the desired option.
4) Press the **ENT** Key. Select the **TMR/REF** Softkey to remove the window.

SET BAROMETRIC MINIMUM DESCENT ALTITUDE

1) Select the **TMR/REF** Softkey.
2) Turn the large **FMS** Knob to highlight the OFF/BARO field to the right of 'MINIMUMS'.
3) Turn the small **FMS** Knob clockwise to select BARO.
4) Press the **ENT** Key.
5) Use the small **FMS** Knob to enter the desired altitude.
6) Press the **ENT** Key.
7) To remove the window, press the **CLR** Key or select the **TMR/REF** Softkey.

DISPLAYING WIND DATA

1) Select the **PFD** Softkey.
2) Select the **WIND** Softkey to display wind data below the Selected Heading.
3) Select one of the **OPTN** softkeys to change how wind data is displayed.
4) To remove the Wind Data Window, select the **OFF** Softkey.

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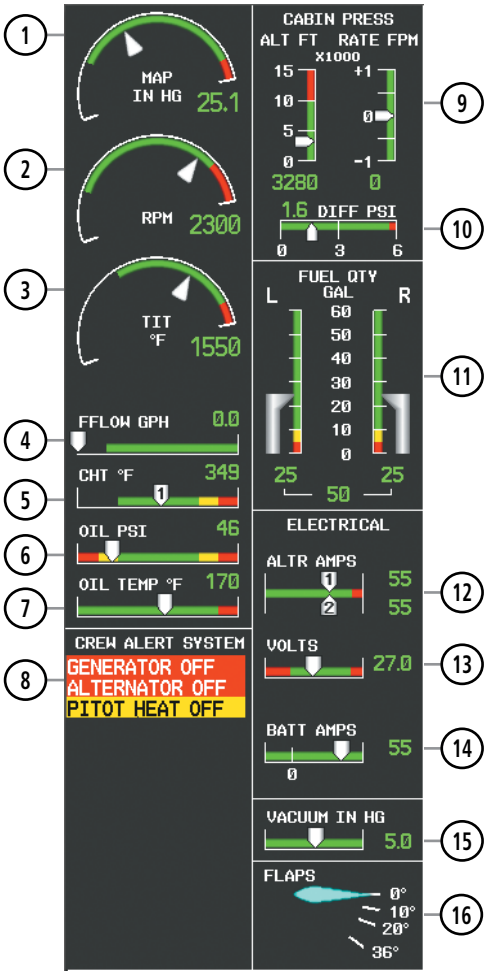
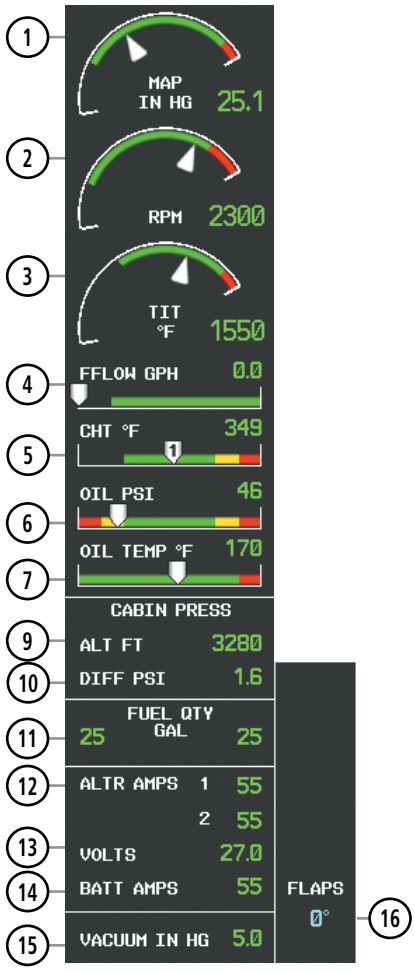
ENGINE INDICATION & CREW ALERTING SYSTEM

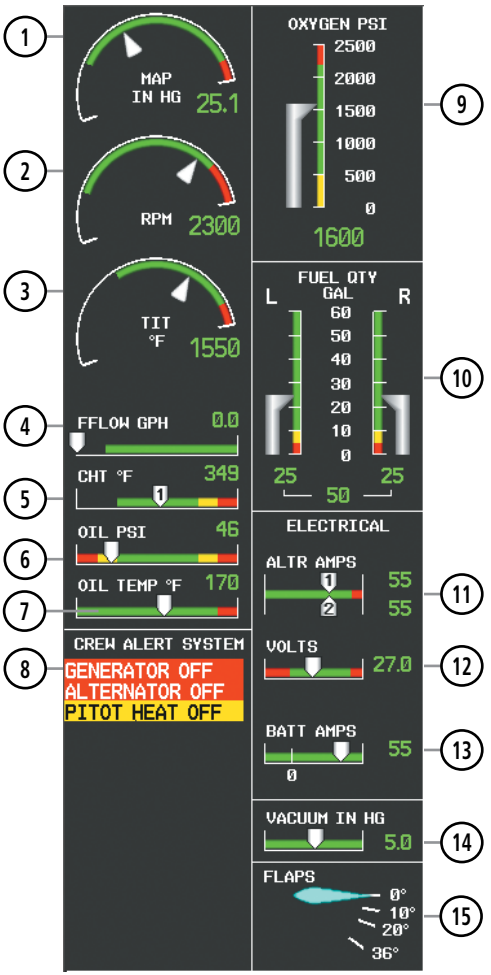


Mirage EICAS Display (Normal Mode)

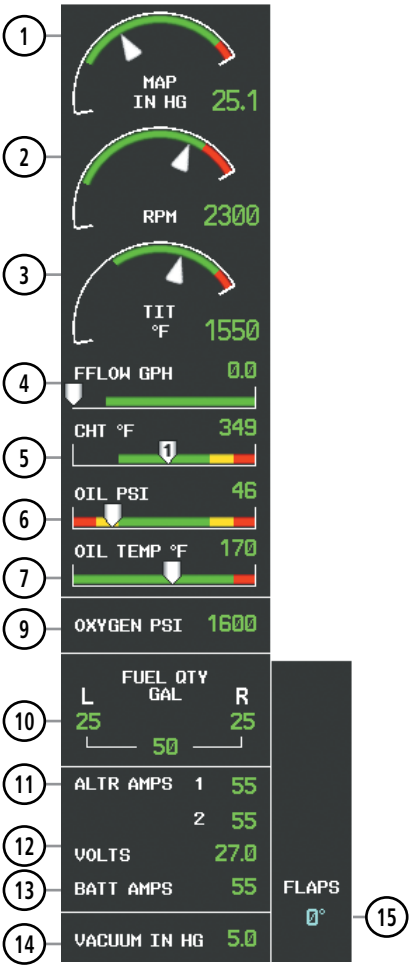


Mirage EIS Display (Reversionary Mode)

1. *Manifold Pressure*
2. *Propeller Speed*
3. *Turbine Inlet Temperature*
4. *Fuel Flow*
5. *Cylinder Head Temp*
6. *Oil Pressure*
7. *Oil Temperature*
8. *CAS Display*
9. *Cabin Pressure Altitude and Change Rate*
10. *Differential Pressure*
11. *Fuel Quantity*
12. *Alternator Current*
13. *Bus Voltage*
14. *Battery Current*
15. *Vacuum*
16. *Flap Setting*



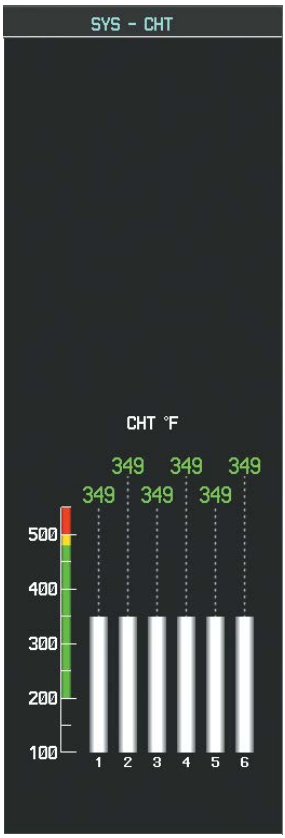
Matrix EICAS Display (Normal Mode)



Matrix EIS Display (Reversionary Mode)

1. *Manifold Pressure*
2. *Propeller Speed*
3. *Turbine Inlet Temperature*
4. *Fuel Flow*
5. *Cylinder Head Temperature*
6. *Oil Pressure*
7. *Oil Temperature*
8. *CAS Display*
9. *Oxygen Pressure*
10. *Fuel Quantity*
11. *Alternator Current*
12. *Bus Voltage*
13. *Battery Current*
14. *Vacuum*
15. *Flap Setting*

Pressing the **SYSTEM** Softkey displays the Cylinder Head Temperature Display on the right side of the MFD display. Press the **SYSTEM** Softkey again to remove the display.

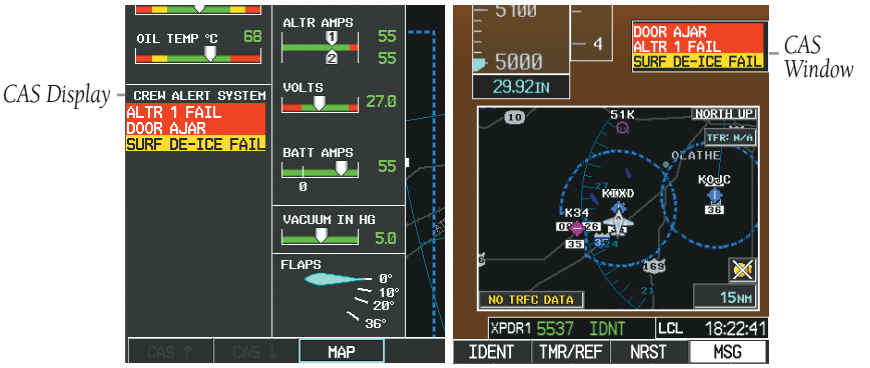


Cylinder Head Temperature Display

CREW ALERTING SYSTEM (CAS)

NOTE: *Refer to the Annunciations and Alerts section for specific CAS messages.*

NOTE: *Refer to the Pilot's Operating Handbook (POH) for emergency procedures.*



CAS Message Displays

Message Prioritization

NOTE: *Red warning messages cannot be scrolled through and remain at the top of the CAS display. The scroll bar changes to yellow if more than ten caution messages exist to be scrolled through.*

- **Warning** (red) – Immediate crew awareness and action required; Master Warning triggered
- **Caution** (yellow) – Immediate crew awareness and possible future corrective action required; Master Caution triggered
- **Advisory** (white) – Advisory information; no immediate action required

When a new red CAS warning message appears, it flashes (inversely red on white) in conjunction with the Master Warning Indicator. Pressing the Master Warning Indicator acknowledges all flashing red messages, extinguishing the master warning lights, and stops warning message flashing.

When a new yellow caution message appears on the CAS display, it appears as black text on a yellow background. Pressing the Master Caution Indicator acknowledges all unacknowledged yellow messages, extinguishing the master caution light. The caution message is displayed as yellow text on black after it is acknowledged.

Messages are displayed until the issue is corrected.

Once acknowledged, CAS warning messages are shown in red text and are displayed until the issue is corrected.

NAV/COM/TRANSPONDER/AUDIO PANEL

ENTER A TRANSPONDER CODE

1) Select the **XPDR** Softkey.
2) Select the **CODE** Softkey to display the transponder code selection softkeys, for digit entry.
3) Select the digit softkeys to enter the code in the code field. When entering the code, the next key in sequence must be pressed within 10 seconds, or the entry is cancelled and restored to the previous code. Five seconds after the fourth digit has been entered, the transponder code becomes active.

SELECT TRANSPONDER MODE

1) Select the **XPDR** Softkey.
2) If the aircraft is equipped with two transponders, select the **XPDR1** or **XPDR2** Softkey to select the active transponder.
3) Select the desired transponder mode softkey (**STBY**, **ON**, **ALT**, or **GND**).

SELECTING A COM RADIO

Transmit/Receive

Press the **COM1 MIC**, **COM2 MIC**, or **COM3 MIC** Key (HF, if installed) on the audio panel.

Receive Only

Press the **COM1**, **COM2**, or **COM3** Key (HF, if installed) on the audio panel.

SELECTING A NAV RADIO

1) To begin navigating using a navigation radio, select the **CDI** Softkey on the PFD to select VOR1/LOC1 (NAV1) or VOR2/LOC2 (NAV2).
2) Press the **NAV1**, **NAV2**, **DME**, or **ADF** Key on the audio panel to select or deselect the navigation radio audio source. All radio keys can be selected individually or together.

NAV/COM TUNING

1) Press the small tuning knob to select the desired radio for tuning. A light blue box highlights the radio frequency to be tuned.
2) Turn the respective tuning knobs to enter the desired frequency into the standby frequency field. The large knob enters MHz and the small knob enters kHz.
3) Press the **Frequency Transfer** Key to place the frequency into the active frequency field.

SPLIT COM

During Split COM operation, both the pilot and the copilot can transmit simultaneously over separate radios. The pilot can still monitor NAV1, NAV2, ADF, DME, and MKR Audio as selected, but the copilot is only able to monitor COM2.

When Split COM operation is selected, COM1 is used by the pilot and COM2 is used by the copilot. The COM1 MIC Annunciator flashes when the pilot's microphone PTT is pressed. The COM2 MIC Annunciator flashes when the copilot's microphone PTT is pressed.

Pressing the **COM 1/2** Key selects Split COM operation. The COM 1/2 Annunciator is illuminated indicating Split COM operation. COM1 and COM2 frequencies are displayed in green indicating that both transceivers are active. Split COM operation is cancelled by pressing the **COM 1/2** Key again, at which time the annunciator is extinguished.

DIGITAL CLEARANCE RECORDER AND PLAYER

*NOTE: Only the audio for the selected **COM MIC** Key is recorded. Audio is not recorded for COM3 MIC.*

- Pressing the **PLAY** Key once plays the latest recorded memory block, then returns to normal operation.
- Pressing the **MKR/MUTE** Key while playing a memory block stops play.
- Pressing the **PLAY** Key during play begins playing the previously recorded memory block. Each subsequent press of the **PLAY** Key begins playing the next previously recorded block.

INTERCOM SYSTEM (ICS) ISOLATION

Press the **PILOT** and/or **COPLT** Key on either audio panel to select those isolated from hearing the Nav/Com radios and music.

PILOT KEY Annunciator	COPLT KEY Annunciator	Pilot Hears	Copilot Hears	Passenger Hears
OFF	OFF	Selected Radios, Aural Alerts, Pilot, Copilot, Passengers, Music	Selected Radios, Aural Alerts, Pilot, Copilot, Passengers, Music	Selected Radios, Aural Alerts, Pilot, Copilot, Passengers, Music
ON	OFF	Selected Radios, Aural Alerts, Pilot	Selected Radios, Aural Alerts, Copilot, Passengers, Music	Copilot, Passengers, Music
OFF	ON	Selected Radios, Aural Alerts, Pilot, Passengers, Music	Selected radios, Aural Alerts, Copilot	Selected Radios, Aural Alerts, Pilot, Passengers, Music
ON	ON	Selected Radios, Aural Alerts, Pilot, Copilot	Selected Radios, Aural Alerts, Pilot, Copilot	Passengers, Music

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AUTOMATIC FLIGHT CONTROL SYSTEM

NOTE: If sensor information (other than attitude) required for a flight director mode becomes invalid or unavailable, the flight director automatically reverts to the default mode for that axis.

NOTE: If the attitude information required for the default flight director modes becomes invalid or unavailable, the autopilot automatically disengages.

FLIGHT DIRECTOR ACTIVATION

An initial press of a key listed in the following table (when the flight director is not active) activates the pilot-side flight director in the listed modes.

Control Pressed	Modes Selected			
	Lateral		Vertical	
FD Key	Roll Hold (default)	ROL	Pitch Hold (default)	PIT
AP Key	Roll Hold (default)	ROL	Pitch Hold (default)	PIT
CWS Button	Roll Hold (default)	ROL	Pitch Hold (default)	PIT
GA Switch	Go Around	GA	Go Around	GA
ALT Key	Roll Hold (default)	ROL	Altitude Hold	ALT
VS Key	Roll Hold (default)	ROL	Vertical Speed	VS
VNV Key	Roll Hold (default)	ROL	Vertical Path Tracking*	VPTH
NAV Key	Navigation**	GPS VOR LOC	Pitch Hold (default)	PIT
BC Key	Backcourse***	BC	Pitch Hold (default)	PIT
APR Key	Approach**	GPS VOR LOC	Pitch Hold (default) Glidepath Glideslope	PIT GP GS
HDG Key	Heading Select	HDG	Pitch Hold (default)	PIT

Valid VNV flight plan must be entered before **VNV Key press activates flight director.*

***The selected navigation receiver must have a valid VOR or LOC signal or active GPS course before **NAV** or **APR** Key press activates flight director.*

****The selected navigation receiver must have a valid LOC signal before **BC** Key press activates flight director.*

VERTICAL MODES

Vertical Mode	Description	Control	Annunciation
Pitch Hold	Holds the current aircraft pitch attitude; may be used to climb/descend to the Selected Altitude	(default)	PIT
Selected Altitude Armed	AFCS armed to capture the altitude displayed in the Selected Altitude window	*	ALTS
Altitude Hold	Holds the current Altitude Reference	**ALT** Key	ALT nnnnn FT
Vertical Speed	Maintains the current aircraft vertical speed; may be used to climb/descend to the Selected Altitude	**VS** Key	VS nnnn FPM
Flight Level Change, IAS Hold	Maintains the current aircraft airspeed (in IAS or Mach) while the aircraft is climbing/descending to the Selected Altitude	**FLC** Key	FLC nnn KT
Flight Level Change, Mach Hold			FLC M .nnn
VNAV	Captures and tracks the VNAV flight path	**VNV** Key	VPTH
VNAV Target Altitude Armed	AFCS armed to capture the altitude displayed in the VNAV Target Altitude window	**	ALTV
Glidepath	Captures and tracks the SBAS glidepath on approach	**APR** Key	GP
Glideslope	Captures and tracks the ILS glideslope on approach		GS
Go Around	Disengages the autopilot and commands a constant 8° pitch UP attitude and wings level	**GA** Switch	GA

* *ALTS armed automatically when PIT, VS, FLC, or GA active, and under VPTH when Selected Altitude is to be captured instead of VNAV Target Altitude*

** *ALTV armed automatically under VPTH when VNAV Target Altitude is to be captured instead of Selected Altitude*

LATERAL MODES

Lateral Mode	Description	Control	Annunciation
Roll Hold	Holds current aircraft roll attitude or rolls wings level, depending on commanded bank angle	(default)	ROL
Low Bank	Limits maximum commanded roll angle	**BANK** Key	*
Heading Select	Captures and tracks Selected Heading	**HDG** Key	HDG
Navigation, GPS Arm/Capture/Track	Captures and tracks selected navigation source (GPS, VOR, LOC)	**NAV** Key	GPS
Navigation, VOR Enroute Arm/ Capture/Track			VOR
Navigation, LOC Arm/Capture/Track (No Glideslope)			LOC
Backcourse Arm/ Capture/Track	Captures and tracks a localizer signal for backcourse approaches	**BC** Key	BC
Approach, GPS Arm/ Capture/Track	Captures and tracks selected navigation source (GPS, VOR, LOC)	**APR** Key	GPS
Approach, VOR Arm/ Capture/Track			VAPP
Approach, ILS Arm/ Capture/Track (Glideslope Mode automatically armed)			LOC
Go Around	Disengages autopilot and commands a constant 8° pitch UP attitude and wings level	**GA** Switch	GA

** No annunciation appears in the AFCS Status Box. The acceptable bank angle range is indicated in green along the Roll Scale of the Attitude Indicator.*

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GPS NAVIGATION

DIRECT-TO NAVIGATION

Direct-to Navigation using the MFD

1) Press the **Direct-to** (D▸) Key on the MFD or MFD Controller.
2) Enter the waypoint identifier.
3) Press the **ENT** Key to confirm the identifier. The 'Activate?' field is highlighted.
4) If no altitude constraint or course is desired, press the **ENT** Key to activate. To enter an altitude constraint, proceed to step 5.
5) Turn the large **FMS** Knob counterclockwise to place the cursor over the 'VNV' altitude field.
6) Enter the desired altitude.
7) Press the **ENT** Key. If the waypoint entered is an airport, the option to select MSL or AGL is now displayed. If the waypoint is not an airport, proceed to step 9.
8) Turn the small **FMS** Knob to select 'MSL' or 'AGL'.
9) Press the **ENT** Key. The cursor is now flashing in the VNV offset distance field.
10) Enter the desired offset distance before (-) the waypoint.
11) Press the **ENT** Key. The 'Activate?' field is highlighted.
12) Press the **ENT** Key to activate.

Direct-to Navigation using the PFD

1) Press the **Direct-to** Key (D▸) on the PFD.
2) Turn the large **FMS** Knob to place the cursor in the desired selection field.
3) Turn the small **FMS** Knob to begin selecting the desired identifier, location, etc.
4) Press the **ENT** Key.
5) The cursor is now flashing on 'ACTIVATE?'. If no altitude constraint or course is desired, press the **ENT** Key to activate. To enter an altitude constraint, proceed to step 6.
6) Turn the large **FMS** Knob counterclockwise to place the cursor over the 'ALT' altitude field.

7) Turn the small **FMS** Knob to enter the desired altitude constraint.
8) Press the **ENT** Key. If the waypoint entered is an airport, the option to select MSL or AGL is now displayed. If the waypoint is not an airport, proceed to step 10.
9) Turn the small **FMS** Knob to select 'MSL' or 'AGL'.
10) Press the **ENT** Key. The cursor is placed in the 'OFFSET' field.
11) Turn the small **FMS** Knob to enter the desired offset distance (-) from the selected Direct-to.
12) Press the **ENT** Key to highlight 'Activate?' or turn the large **FMS** Knob to highlight the 'CRS' field.
13) Turn the small **FMS** Knob to enter the desired course to the waypoint.
14) Press the **ENT** Key to highlight 'ACTIVATE?'.
15) Press the **ENT** Key again to activate the Direct-to.

ACTIVATE A STORED FLIGHT PLAN

1) Press the **FPL** Key on the MFD, or MFD Controller, and turn the small **FMS** Knob to display the Flight Plan Catalog Page.
2) Press the **FMS** Knob to activate the cursor.
3) Turn the large **FMS** Knob to highlight the desired flight plan
4) Select the **ACTIVE** Softkey. The confirmation window is now displayed.
5) With 'OK' highlighted, press the **ENT** Key to activate the flight plan. To cancel the flight plan activation, turn the large **FMS** Knob to highlight 'CANCEL' and press the **ENT** Key.

ACTIVATE A FLIGHT PLAN LEG

1) From the Active Flight Plan Page, press the **FMS** Knob to activate the cursor and turn the large **FMS** Knob to highlight the desired TO waypoint.
2) Select the **ACT LEG** Softkey.

   OR

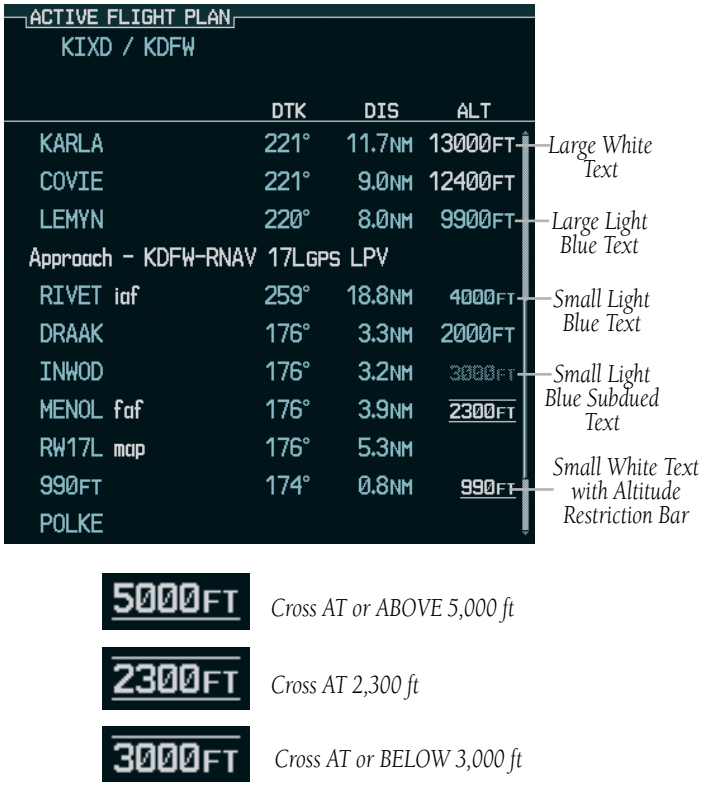
   Press the **MENU** Key, select the 'Activate Leg' option from the page menu and press the **ENT** Key. This step must be used when activating a leg using the PFD.
3) With 'Activate' highlighted, press the **ENT** Key.

STOP NAVIGATING A FLIGHT PLAN

1) Press the **FPL** Key to display the Active Flight Plan Page.
2) Press the **MENU** Key to display the Page Menu Window.
3) Turn the large **FMS** Knob to highlight 'Delete Flight Plan' and press the **ENT** Key. With 'OK' highlighted, press the **ENT** Key to deactivate the flight plan. This will not delete the stored flight plan, only the active flight plan.

VERTICAL NAVIGATION (VNAV)

The navigation database only contains altitudes for procedures that call for "Cross at" altitudes. If the procedure states "Expect to cross at," the altitude is not in the database. In this case the altitude may be entered manually.



Cross AT or ABOVE 5,000 ft

Cross AT 2,300 ft

Cross AT or BELOW 3,000 ft

Altitudes associated with approach procedures are "auto-designated". This means the system will automatically use the altitudes loaded with the approach for giving vertical flight path guidance outside the FAF. Note these altitudes are displayed as small light blue text.

Altitudes associated with arrival procedures are "manually-designated". This means the system will not use the altitudes loaded with the arrival for giving vertical flight path guidance until designated to do so by the pilot. Note that these altitudes are initially displayed as white text. These altitudes may be "designated" by placing the cursor over the desired altitude and pressing the **ENT** Key. After designation, the text changes to light blue.

Altitudes that have been designated for use in vertical navigation may also be made "non-designated" by placing the cursor over the desired altitude and pressing the **CLR** Key. The altitude is now displayed only as a reference. It will not be used to give vertical flight path guidance. Other displayed altitudes may change due to re-calculations or rendered invalid as a result of manually changing an altitude to a non-designated altitude.

	White Text	Light Blue Text	Light Blue Subdued Text
Large Text	Altitude calculated by the system estimating the altitude of the aircraft as it passes over the navigation point. This altitude is provided as a reference and is not designated to be used in determining vertical flight path guidance.	Altitude has been entered by the pilot. Altitude is designated for use in giving vertical flight path guidance. Altitude does not match the published altitude in navigation database or no published altitude exists.	The system cannot use this altitude in determining vertical flight path guidance.
Small Text	Altitude is not designated to be used in determining vertical flight path guidance. Altitude has been retrieved from the navigation database and is provided as a reference.	Altitude is designated for use in giving vertical flight path guidance. Altitude has been retrieved from the navigation database or has been entered by the pilot and matches a published altitude in the navigation database.	The system cannot use this altitude in determining vertical flight path guidance.

FLIGHT PLANNING

WEIGHT & FUEL PLANNING

All procedures apply to the MFD unless otherwise stated.

Entering Weight Parameters

The Weight, Fuel, Exceedances Page is displayed after system power-up. If it is necessary to return to this page, turn the large **FMS** Knob to select the 'AUX' page group. Turn the small **FMS** Knob to select the first rectangular page icon.

1) Select the **EMPTY WT** Softkey to place the cursor in the Basic Empty Weight field.
2) Enter the desired aircraft empty weight.
3) Press the **ENT** Key. The cursor is now over the 'PILOT & STORES' field.
4) Enter the desired weight of Pilot & Stores.
5) Press the **ENT** Key.
6) Continue repeating these steps until all desired weights have been entered.

Entering Fuel Parameters

1) If necessary, press the **FMS** Knob to activate the cursor.
2) Turn the large **FMS** Knob to place the cursor in the 'FUEL ON BOARD' field.
3) Select the **FOB SYNC** Softkey to enter the fuel on board quantity as read from the aircraft fuel quantity sensors.

   Or:

   Manually enter the desired fuel quantity.
4) Press the **ENT** Key. The cursor is now in the 'FUEL RESERVES' field.
5) Enter the desired reserve fuel quantity.
6) Press the **FMS** Knob to remove the cursor.

TRIP PLANNING

1) Turn the large **FMS** Knob to select the 'AUX' page group.
2) Turn the small **FMS** Knob to select the second rectangular page icon.
3) The current 'PAGE MODE' is displayed at the top of the page: 'AUTOMATIC' or 'MANUAL'. To change the page mode, select the **AUTO** or **MANUAL** Softkey.

4) For Direct-to planning:

a) Select the **WPTS** Softkey and verify that the starting waypoint field indicates 'P.POS' (present position).

b) If necessary, press the **MENU** Key and select 'Set WPT to Present Position' to display 'P.POS'.

c) Press the **ENT** Key and the flashing cursor moves to the ending waypoint field.

d) Enter the identifier of the ending waypoint and press the **ENT** Key to accept the waypoint.

Or:

For point-to-point planning:

a) Enter the identifier of the starting waypoint.

b) Once the waypoint's identifier is entered, press the **ENT** Key to accept the waypoint. The flashing cursor moves to the ending waypoint.

c) Again, enter the identifier of the ending waypoint.

d) Press the **ENT** Key to accept the waypoint.

Or:

For flight plan leg planning:

a) Select the **FPL** Softkey (at the bottom of the display).

b) Turn the small **FMS** Knob to select the desired flight plan (already stored in memory), by number.

c) Turn the large **FMS** Knob to highlight the 'LEG' field.

d) Turn the small **FMS** Knob to select the desired leg of the flight plan, or select 'CUM' to apply trip planning calculations to the entire flight plan. Selecting 'FPL 00' displays the active flight plan. If an active flight plan is selected, 'REM' will be an available option to display planning data for the remainder of the flight plan.

NOTE: *The page mode must be set to 'MANUAL' to perform the following steps. When the mode is set to 'AUTOMATIC', the data fields cannot be changed by the pilot.*

5) Turn the large **FMS** Knob to highlight the departure time (DEP TIME) field.

NOTE: *The departure time on the Trip Planning Page is used for preflight planning. Refer to the Utility Page for the actual flight departure time.*

6) Enter the departure time. Press the **ENT** Key when finished. Departure time may be entered in local or UTC time, depending upon system settings.

7) The flashing cursor moves to the ground speed (GS) field. Enter the ground speed. Press the **ENT** Key when finished. Note that in 'automatic' page mode, ground speed is provided by the system.

8) The flashing cursor moves to the fuel flow field. Enter the fuel flow. Press the **ENT** Key when finished. Note that in 'AUTOMATIC' page mode, fuel flow is provided by the system.

9) The flashing cursor moves to the fuel onboard field. Modify the fuel onboard. Press the **ENT** Key when finished. In 'AUTOMATIC' mode, fuel onboard is provided by the entry made on the Weight Planning Page.

10) The flashing cursor moves to the calibrated airspeed (CALIBRATED AS) field. Enter the calibrated airspeed. Press the **ENT** Key when finished. Note that in 'AUTOMATIC' page mode, calibrated airspeed is provided by the system.

11) The flashing cursor moves to the altitude (IND ALTITUDE) field. Enter the altitude. Press the **ENT** Key when finished. Note that in 'AUTOMATIC' page mode, altitude is provided by the system.

12) The flashing cursor moves to the barometric setting (PRESSURE) field. Enter the desired baro setting. Press the **ENT** Key when finished. Note that in 'AUTOMATIC' page mode, the baro setting is provided by the setting entered on the PFD.

13) The flashing cursor moves to the air temperature (TOTAL AIR TEMP) field. Enter the desired air temperature. Press the **ENT** Key when finished. Note that in 'AUTOMATIC' page mode, air temperature is provided by the system outside air temperature.

CREATE A USER WAYPOINT DEFINED BY LATITUDE & LONGITUDE

1) Turn the large **FMS** Knob on the Control Unit to select the 'WPT' page group.

2) Turn the small **FMS** Knob to select the User WPT Information Page.

3) Select the **NEW** Softkey. A waypoint is created at the current aircraft position.

4) Enter the desired waypoint name.
5) Press the **ENT** Key.
6) The cursor is now in the 'WAYPOINT TYPE' field. If desired, the waypoint can be made temporary (deleted automatically when the system is turned off). If the waypoint is to remain in the system, proceed to step 7.
   a) Turn the large **FMS** Knob one click to the left to highlight 'TEMPORARY'.
   b) Press the **ENT** Key to place a check-mark in the box. Turn the large **FMS** Knob to place the cursor back in the 'WAYPOINT TYPE' field.
7) With the cursor in the 'WAYPOINT TYPE' field, turn the small **FMS** Knob to display a list of waypoint types.
8) Turn the small **FMS** Knob to select LAT/LON (latitude and longitude).
9) Press the **ENT** Key.

CREATE A USER WAYPOINT DEFINED BY RADIALS FROM OTHER WAYPOINTS

1) Turn the large **FMS** Knob on the Control Unit to select the 'WPT' page group.
2) Turn the small **FMS** Knob to select the User WPT Information Page.
3) Select the **NEW** Softkey. A waypoint is created at the current aircraft position.
4) Enter the desired waypoint name.
5) Press the **ENT** Key.
6) The cursor is now in the 'WAYPOINT TYPE' field. If desired, the waypoint can be made temporary (deleted automatically when the system is turned off). If the waypoint is to remain in the system, proceed to step 7.
   a) Turn the large **FMS** Knob one click to the left to highlight 'TEMPORARY'.
   b) Press the **ENT** Key to place a check-mark in the box. Turn the large **FMS** Knob to place the cursor back in the 'WAYPOINT TYPE' field.
7) With the cursor in the 'WAYPOINT TYPE' field, turn the small **FMS** Knob to display a list of waypoint types.
8) Turn the small **FMS** Knob to select RAD/RAD (radial/radial).
9) Press the **ENT** Key.

10) The cursor moves to the 'REFERENCE WAYPOINTS' field. With the first waypoint name highlighted, use the **FMS** Knobs to enter the desired waypoint name. Waypoints may also be selected as follows:

a) When a flight plan is active, turning the small **FMS** Knob to the left will display a list of the flight plan waypoints.

b) Turn the large **FMS** Knob to select the desired waypoint.

c) Press the **ENT** Key.

Or:

a) Turn the small **FMS** Knob to the left. Initially, a flight plan waypoint list is displayed.

b) Turn the small **FMS** Knob to the right to display the 'NRST' airports to the aircraft's current position.

c) Turn the large **FMS** Knob to select the desired waypoint.

d) Press the **ENT** Key.

Or:

a) Turn the small **FMS** Knob to the left. Initially, a flight plan waypoint list is displayed.

b) Turn the small **FMS** Knob to the right to display the 'RECENT' waypoints.

c) Turn the large **FMS** Knob to select the desired waypoint.

d) Press the **ENT** Key.

Or:

a) Turn the small **FMS** Knob to the left. Initially, a flight plan waypoint list is displayed.

b) Turn the small **FMS** Knob to the right to display the 'USER' waypoints.

c) Turn the large **FMS** Knob to select the desired waypoint.

d) Press the **ENT** Key.

11) Press the **ENT** Key. The cursor is displayed in the 'RAD' (radial) field. Enter the desired radial from the reference waypoint.

12) Press the **ENT** Key.

13) Repeat step 10 to enter the next waypoint name.

14) Press the **ENT** Key. The cursor is displayed in the 'RAD' (radial) field for the second waypoint. Enter the desired radial from the reference waypoint.

15) Press the **ENT** Key.

16) Press the **FMS** Knob to remove the flashing cursor.

CREATE A USER WAYPOINT DEFINED BY A RADIAL & DISTANCE FROM ANOTHER WAYPOINT

1) Turn the large **FMS** Knob on the MFD Control Unit to select the 'WPT' page group.

2) Turn the small **FMS** Knob to select the User WPT Information Page.

3) Select the **NEW** Softkey. A waypoint is created at the current aircraft position.

4) Enter the desired waypoint name.

5) Press the **ENT** Key.

6) The cursor is now in the 'WAYPOINT TYPE' field. If desired, the waypoint can be made temporary (deleted automatically when the system is turned off). If the waypoint is to remain in the system, proceed to step 7.

- **a)** Turn the large **FMS** Knob one click to the left to highlight 'TEMPORARY'.
- **b)** Press the **ENT** Key to place a check-mark in the box. Turn the large **FMS** Knob to place the cursor back in the 'WAYPOINT TYPE' field.

7) With the cursor in the 'WAYPOINT TYPE' field, turn the small **FMS** Knob to display a list of waypoint types.

8) Turn the small **FMS** Knob to select RAD/DIS (radial/distance).

9) Press the **ENT** Key.

10) The cursor moves to the 'REFERENCE WAYPOINTS' field. With the first waypoint name highlighted, use the **FMS** Knobs to enter the desired waypoint name. Waypoints may also be selected as follows:

- **a)** When a flight plan is active, turning the small **FMS** Knob to the left will display a list of the flight plan waypoints.
- **b)** Turn the large **FMS** Knob to select the desired waypoint.
- **c)** Press the **ENT** Key.

Or:

- **a)** Turn the small **FMS** Knob to the left. Initially, a flight plan waypoint list is displayed.

b) Turn the small **FMS** Knob to the right to display the 'NRST' airports to the aircraft's current position.

c) Turn the large **FMS** Knob to select the desired waypoint.

d) Press the **ENT** Key.

Or:

a) Turn the small **FMS** Knob to the left. Initially, a flight plan waypoint list is displayed.

b) Turn the small **FMS** Knob to the right to display the 'RECENT' waypoints.

c) Turn the large **FMS** Knob to select the desired waypoint.

d) Press the **ENT** Key.

Or:

a) Turn the small **FMS** Knob to the left. Initially, a flight plan waypoint list is displayed.

b) Turn the small **FMS** Knob to the right to display the 'USER' waypoints.

c) Turn the large **FMS** Knob to select the desired waypoint.

d) Press the **ENT** Key.

11) Press the **ENT** Key. The cursor is displayed in the 'RAD' (radial) field. Enter the desired radial from the reference waypoint.

12) Press the **ENT** Key.

13) The cursor is now displayed in the 'DIS' (distance) field. Enter the desired distance from the reference waypoint.

14) Press the **ENT** Key.

15) Press the **FMS** Knob to remove the flashing cursor.

DELETE A USER WAYPOINT

1) Turn the large **FMS** Knob to select the 'WPT' page group.

2) Turn the small **FMS** Knob to select the User WPT Information Page.

3) Press the **FMS** Knob to activate the cursor.

4) Turn the large **FMS** Knob to the place the cursor in the 'USER WAYPOINT LIST' field.

5) Turn the small **FMS** Knob to highlight the desired waypoint.

6) Select the **DELETE** Softkey.

7) The message 'Would you like to delete the user waypoint?' is displayed. With 'YES' highlighted, press the **ENT** Key.

CREATE A FLIGHT PLAN

NOTE: *When creating a flight plan in the Active Flight Plan Window, the first leg is activated automatically after it is created.*

Creating an active flight plan:

1) Press the **FPL** Key.

2) Press the **FMS** Knob to activate the cursor (only on MFD).

3) Turn the small **FMS** Knob to display the Waypoint Information Window. (Turning it clockwise displays a blank Waypoint Information Window, turning it counter-clockwise displays the Waypoint Information Window with a waypoint selection submenu allowing selection of active flight plan, nearest, recent, user, or airway waypoints).

4) Enter the identifier, facility, or city name of the departure waypoint or select a waypoint from the submenu of waypoints and press the **ENT** Key. The active flight plan is modified as each waypoint is entered.

5) Repeat step numbers 3 and 4 to enter each additional flight plan waypoint.

6) When all waypoints have been entered, press the **FMS** Knob to remove the cursor.

Creating a stored flight plan:

1) Press the **FPL** Key.

2) Turn the small **FMS** Knob clockwise to display the Flight Plan Catalog Page.

3) Select the **NEW** Softkey; or press the **MENU** Key, highlight 'Create New Flight Plan', and press the **ENT** Key to display a blank flight plan for the first empty storage location.

4) Turn the small **FMS** Knob to display the Waypoint Information Window. (Turning it clockwise displays a blank Waypoint Information Window, turning it counter-clockwise displays the Waypoint Information Window with a waypoint selection submenu allowing selection of active flight plan, nearest, recent, user, or airway waypoints).

5) Enter the identifier, facility, or city name of the departure waypoint or select a waypoint from the submenu of waypoints and press the **ENT** Key.
6) Repeat step numbers 4 and 5 to enter each additional flight plan waypoint.
7) When all waypoints have been entered, press the **FMS** Knob to return to the Flight Plan Catalog Page. The new flight plan is now in the list.

IMPORT A FLIGHT PLAN FROM AN SD CARD

1) Insert the SD card containing the flight plan in the top card slot on the MFD.
2) Press the **FPL** Key on the Control Unit to display the Active Flight Plan Page on the MFD.
3) Turn the small **FMS** Knob to select the Flight Plan Catalog Page.
4) Press the **FMS** Knob to activate the cursor.
5) Turn either **FMS** Knob to highlight an empty or existing flight plan.
6) Select the **IMPORT** Softkey.

   If an empty flight plan is selected, a list of the available flight plans on the SD card will be displayed.

   Or:

   If an existing flight plan is selected, an 'Overwrite existing flight plan? OK or CANCEL' prompt is displayed. Press the **ENT** Key to choose to overwrite the selected flight plan and see a list of the available flight plans on the SD card. If overwriting the existing flight plan is not desired, select 'CANCEL' using the **FMS** Knob, press the **ENT** Key, select another existing or empty flight plan, and again select the **IMPORT** Softkey.
7) Turn the small **FMS** Knob to highlight the desired flight plan for importing.
8) Press the **ENT** Key.

INSERT A WAYPOINT IN THE ACTIVE FLIGHT PLAN

1) Press the **FPL** Key to display the active flight plan.
2) If necessary, press the **FMS** Knob to activate the cursor.
3) Turn the large **FMS** Knob to highlight the desired flight plan waypoint. The new waypoint is inserted before the highlighted waypoint.
4) Turn the small **FMS** Knob. The Waypoint Information Window is now displayed.

5) Enter the new flight plan waypoint by one of the following:

a) Enter the user waypoint identifier, facility, or city.

b) Press the **ENT** Key.

Or:

a) Turn the small **FMS** Knob to the left. Initially, a flight plan waypoint list is displayed.

b) Turn the small **FMS** Knob to the right to display the 'NRST' airport waypoints to the aircraft's current position.

c) Turn the large **FMS** Knob to select the desired waypoint.

d) Press the **ENT** Key.

Or:

a) Turn the small **FMS** Knob to the left. Initially, a flight plan waypoint list is displayed.

b) Turn the small **FMS** Knob to the right to display the 'RECENT' waypoints.

c) Turn the large **FMS** Knob to select the desired waypoint.

d) Press the **ENT** Key.

e) Press the **ENT** Key again to "accept" the waypoint.

ENTER AN AIRWAY IN A FLIGHT PLAN

1) Press the **FPL** Key.

2) Press the **FMS** Knob to activate the cursor (not required on the PFD).

3) Turn the large **FMS** Knob to highlight the waypoint after the desired airway entry point. If this waypoint is not a valid airway entry point, a valid entry point should be entered at this time.

4) Turn the small **FMS** Knob one click clockwise and select the **LD AIRWY** Softkey, or press the **MENU** Key and select "Load Airway". The Select Airway Page is displayed. The **LD AIRWY** Softkey or the "Load Airway" menu item is available only when an acceptable airway entry waypoint has been chosen (the waypoint ahead of the cursor position).

5) Turn the **FMS** Knob to select the desired airway from the list, and press the **ENT** Key. Low altitude airways are shown first in the list, followed by "all" altitude airways, and then high altitude airways.

6) Turn the **FMS** Knob to select the desired airway exit point from the list, and press the **ENT** Key. 'LOAD?' is highlighted.

7) Press the **ENT** Key. The system returns to editing the flight plan with the new airway inserted.

INVERT AN ACTIVE FLIGHT PLAN

1) Press the **FPL** Key to display the active flight plan.

2) Press the **MENU** Key to display the Page Menu.

3) Turn the large **FMS** Knob to highlight 'Invert Flight Plan'.

4) Press the **ENT** Key. The original flight plan remains intact in its flight plan catalog storage location.

5) With 'OK' highlighted, press the **ENT** Key to invert the flight plan.

REMOVE A DEPARTURE, ARRIVAL, APPROACH, OR AIRWAY FROM A FLIGHT PLAN

1) Press the **FPL** Key to display the active flight plan. Press the **FMS** Knob to activate the cursor.

   Or, for a stored flight plan:

   a) Press the MFD **FPL** Key and turn the small **FMS** Knob to select the Flight Plan Catalog Page.

   b) Press the **FMS** Knob to activate the cursor.

   c) Turn the large **FMS** Knob to highlight the desired flight plan.

   d) Select the **EDIT** Softkey.

2) Turn the large **FMS** Knob to highlight the title for the approach, departure, arrival, or airway to be deleted. Titles appear in white directly above the procedure's waypoints.

3) Press the **CLR** Key to display a confirmation window.

4) With 'OK' highlighted, press the **ENT** Key to remove the selected procedure or airway.

STORE A FLIGHT PLAN

1) After creating a flight plan on either the PFD or MFD, it may be saved by pressing the **MENU** Key.
2) Turn the large **FMS** Knob to highlight 'Store Flight Plan' and press the **ENT** Key.
3) With 'OK' highlighted, press the **ENT** Key to store the flight plan.

EDIT A STORED FLIGHT PLAN

1) Press the **FPL** Key for the MFD and turn the small **FMS** Knob to display the Flight Plan Catalog Page.
2) Press the **FMS** Knob to activate the cursor.
3) Turn the large **FMS** Knob to highlight the desired flight plan.
4) Select the **EDIT** Softkey.
5) Turn the large **FMS** Knob to place the cursor in the desired location.
6) Enter the changes, then press the **ENT** Key.
7) Press the **FMS** Knob to return to the Flight Plan Catalog Page.

DELETE A WAYPOINT FROM THE FLIGHT PLAN

1) Press the **FPL** Key to display the active flight plan. Press the **FMS** Knob to activate the cursor.

   Or, for a stored flight plan:

   a) Press the **FPL** Key of the MFD and turn the small **FMS** Knob to select the Flight Plan Catalog Page.

   b) Press the **FMS** Knob to activate the cursor.

   c) Turn the large **FMS** Knob to highlight the desired flight plan.

   d) Select the **EDIT** Softkey.
2) Turn the large **FMS** Knob to highlight the waypoint to be deleted.
3) Press the **CLR** Key to display a 'REMOVE (Wpt Name)?' confirmation window.
4) With 'OK' highlighted, press the **ENT** Key to remove the waypoint. To cancel the delete request, turn the large **FMS** Knob to highlight 'CANCEL' and press the **ENT** Key.
5) Once all changes have been made, press the **FMS** Knob to remove the cursor.

INVERT AND ACTIVATE A STORED FLIGHT PLAN

1) Press the **FPL** Key on the MFD or MFD Control Unit.
2) Turn the small **FMS** Knob to select the Flight Plan Catalog Page.
3) Press the **FMS** Knob to activate the cursor.
4) Turn the large **FMS** Knob to highlight the desired flight plan.
5) Select the **INVERT** Softkey. 'Invert and activate stored flight plan?' is displayed.
6) With 'OK' highlighted, press the **ENT** Key. The selected flight plan is now inverted and activated. The original flight plan remains intact in its flight plan catalog storage location.

COPY A FLIGHT PLAN

1) Press the **FPL** Key on the MFD or MFD Control Unit.
2) Turn the small **FMS** Knob to select the Flight Plan Catalog Page.
3) Press the **FMS** Knob to activate the cursor.
4) Turn the large **FMS** Knob to highlight the flight plan to be copied.
5) Select the **COPY** Softkey. A 'Copy to flight plan #?' confirmation window is displayed.
6) With 'OK' highlighted, press the **ENT** Key to copy the flight plan. To cancel, turn the large **FMS** Knob to highlight 'CANCEL' and press the **ENT** Key.

DELETE A FLIGHT PLAN

1) Press the **FPL** Key on the MFD or MFD Control Unit.
2) Turn the small **FMS** Knob to select the Flight Plan Catalog Page.
3) Press the **FMS** Knob to activate the cursor.
4) Turn the large **FMS** Knob to highlight the flight plan to be deleted.
5) Select the **DELETE** Softkey. A 'Delete flight plan #?' confirmation window is displayed.
6) With 'OK' highlighted, press the **ENT** Key to delete the flight plan. To cancel, turn the large **FMS** Knob to highlight 'CANCEL' and press the **ENT** Key.

GRAPHICAL FLIGHT PLAN CREATION

1) Press the **FPL** Key to display the Active Flight Plan Page on the MFD.
2) Press the **Joystick** to activate the map pointer. Use the **Joystick** to move the pointer to the desired point on the map to be inserted as a waypoint in the flight plan.
3) The default insertion point is at the end of the flight plan. If the selected waypoint is to be placed anywhere other than the end of the flight plan, press the **FMS** Knob to activate the cursor. Waypoints are inserted *ABOVE* the cursor. Turn the large **FMS** Knob to select the desired insertion point.
4) Select the **LD WPT** Softkey. The selected waypoint is inserted at the selected point. The default user waypoint naming is USR000, USR001, USR002, and so on.
5) To change the user waypoint name, follow the procedure for modifying a user waypoint.

EXPORT A FLIGHT PLAN TO AN SD CARD

1) Insert the SD card into the top card slot on the MFD.
2) Press the **FPL** Key on the Contol Unit to display the Active Flight Plan Page on the MFD.
3) Turn the small **FMS** Knob to select the Flight Plan Catalog Page.
4) Press the **FMS** Knob to activate the cursor.
5) Turn the large **FMS** Knob to highlight the flight plan to be exported.
6) Select the **EXPORT** Softkey.
7) Press the **ENT** Key to confirm the export.

PROCEDURES

LOAD AND ACTIVATE A DEPARTURE PROCEDURE

1) Press the **PROC** Key.
2) Turn the large **FMS** Knob to highlight 'SELECT DEPARTURE'.
3) Press the **ENT** Key. The cursor is displayed in the 'DEPARTURE' field with a list of available departures.
4) Turn the large **FMS** Knob to highlight the desired departure.
5) Press the **ENT** Key. A list of runways may be displayed for the departure. If so, turn either **FMS** Knob to select the desired runway.
6) Press the **ENT** Key. The cursor is displayed in the 'TRANSITION' field with a list of available transitions.
7) Turn the large **FMS** Knob to highlight the desired transition.
8) Press the **ENT** Key.
9) With 'LOAD?' highlighted, press the **ENT** Key. The departure is active when the flight plan is active.

ACTIVATE A DEPARTURE LEG

1) Press the **FPL** Key on the MFD or MFD Control Unit to display the active flight plan.
2) Press the **FMS** Knob to activate the cursor.
3) Turn the large **FMS** Knob to highlight the TO waypoint of the desired leg within the departure.
4) Select the **ACT LEG** Softkey. A confirmation window showing the selected leg is displayed.
5) With 'ACTIVATE' highlighted, press the **ENT** Key.

LOAD AN ARRIVAL PROCEDURE

1) Press the **PROC** Key.
2) Turn the large **FMS** Knob to highlight 'SELECT ARRIVAL'.
3) Press the **ENT** Key. The cursor is displayed in the 'ARRIVAL' field with a list of available arrivals.

4) Turn the large **FMS** Knob to highlight the desired arrival.
5) Press the **ENT** Key. A list of transitions is displayed for the selected arrival.
6) Turn either **FMS** Knob to select the desired transition.
7) Press the **ENT** Key. A list of runways may be displayed for the selected arrival.
8) Turn the large **FMS** Knob to highlight the desired runway.
9) Press the **ENT** Key.
10) With 'LOAD?' highlighted, press the **ENT** Key.
11) The arrival becomes part of the active flight plan.

ACTIVATE AN ARRIVAL LEG

1) Press the **FPL** Key to display the active flight plan.
2) Press the **FMS** Knob to activate the cursor.
3) Turn the large **FMS** Knob to highlight the TO waypoint of the desired leg within the arrival.
4) Select the **ACT LEG** Softkey. A confirmation window showing the selected leg is displayed.
5) With 'ACTIVATE' highlighted, press the **ENT** Key.

LOAD AND/OR ACTIVATE AN APPROACH PROCEDURE

NOTE: *If certain GPS parameters (SBAS, RAIM, etc.) are not available, some published approach procedures for the desired airport may not be displayed in the list of available approaches.*

1) Press the **PROC** Key.
2) Turn the large **FMS** Knob to highlight 'SELECT APPROACH'.
3) Press the **ENT** Key. A list of available approaches for the destination airport is displayed.
4) Turn either **FMS** Knob to highlight the desired approach.
5) Press the **ENT** Key. A list of available transitions for the selected approach procedure is now displayed.

6) Turn either **FMS** Knob to select the desired transition. The "Vectors" option assumes vectors will be received to the final course segment of the approach and will provide navigation guidance relative to the final approach course.

7) Press the **ENT** Key. The cursor moves to the MINIMUMS field.

8) If desired, the DA/MDA for the selected approach procedure may be entered and displayed on the PFD. Turn the small **FMS** Knob in the direction of the green arrow to change the display from OFF to BARO.

9) Press the **ENT** Key. The cursor moves to the altitude field. Turn the small **FMS** Knob to enter the published DA/MDA for the selected approach procedure.

10) Press the **ENT** Key. 'LOAD? or ACTIVATE?' is now displayed with 'LOAD?' highlighted.

11) Turn the large **FMS** Knob to select either 'LOAD?' or 'ACTIVATE?'.

    Selecting 'LOAD?' enters the selected approach procedure into the active flight plan, but is not currently active. Selecting 'ACTIVATE?' enters the selected approach procedure into the active flight plan and activates the first leg of the approach.

12) Press the **ENT** Key.

ACTIVATE AN APPROACH IN THE ACTIVE FLIGHT PLAN

1) Press the **PROC** Key.
2) Turn the large **FMS** Knob to highlight 'ACTIVATE APPROACH'.
3) Press the **ENT** Key.

ACTIVATE A VECTOR TO FINAL APPROACH FIX

1) Press the **PROC** Key.
2) Turn the large **FMS** Knob to highlight 'ACTIVATE VECTOR-TO-FINAL'.
3) Press the **ENT** Key.
4) The final approach course becomes the active leg.

ACTIVATE A MISSED APPROACH IN THE ACTIVE FLIGHT PLAN

1) Press the **PROC** Key.
2) Turn the large **FMS** Knob to highlight 'ACTIVATE MISSED APPROACH'.
3) Press the **ENT** Key. A confirmation window is displayed.
4) With 'ACTIVATE' highlighted, press the **ENT** Key.

   Or:

   Press the TO/GA switch.

HAZARD AVOIDANCE

CUSTOMIZING THE HAZARD DISPLAYS ON THE NAVIGATION MAP

1) With the Navigation Map Page displayed, press the **MENU** Key to display the Navigation Map Page Menu. The cursor flashes on the 'Map Setup' option.
2) Press the **ENT** Key. The Map Setup Menu is displayed. Turn the small **FMS** Knob to select 'Weather' to customize the display of weather features. Select 'Traffic' to customize the display of traffic.
3) Press the small **FMS** Knob to return to the Navigation Map Page.

STORMSCOPE® (IF EQUIPPED)

WARNING: *The Stormscope system is not intended to be used for hazardous thunderstorm penetration. Weather information on the G1000 MFD is approved for weather avoidance only. Refer to the WX-500 Pilot's Guide for detailed operation.*

Displaying Stormscope Lightning Data on the Navigation Map Page

1) Select the **MAP** Softkey.
2) Select the **STRMSCP** Softkey. Select the **STRMSCP** Softkey again to remove Stormscope Lightning Data from the Navigation Map Page.

Lightning Age	Symbol
Strike is less than 6 seconds old	
Strike is between 6 and 60 seconds old	
Strike is between 1 and 2 minutes old	
Strike is between 2 and 3 minutes old	

Select 'Cell' or 'Strike' as the Stormscope Lightning Mode

1) Press the **MENU** Key (with the Navigation Map Page displayed).
2) Turn either **FMS** Knob to highlight 'Map Setup'.
3) Press the **ENT** Key.
4) Turn the small **FMS** Knob to highlight 'Weather'.

5) Press the **ENT** Key.
6) Turn the large **FMS** Knob to place the cursor in the 'STRMSCP MODE' field.
7) Turn the small **FMS** Knob to display the 'Cell/Strike' window.
8) Turn either **FMS** Knob to select 'Cell' or 'Strike'. Press the **ENT** Key.
9) Push the **FMS** Knob to return to the Navigation Map Page.

Clear Stormscope Lightning Data from the Navigation Map Page

1) Press the **MENU** Key (with the Navigation Map Page displayed).
2) Turn either **FMS** Knob to highlight the 'Clear Stormscope® Lightning' field and press the **ENT** Key.

NOTE: *If heading input is lost, strikes and/or cells must be cleared manually after the execution of each turn. This is to ensure that the strike and/or cell positions are depicted accurately in relation to the nose of the aircraft.*

Stormscope Page

1) Turn the large **FMS** Knob until the Map Page group is selected.
2) Turn the small **FMS** Knob until the Stormscope Page is selected.

Change the Stormscope Lightning Mode Between 'Cell' and 'Strike'

1) Select the Stormscope Page.
2) Select the **MODE** Softkey. The **CELL** and **STRIKE** Softkeys are displayed. Select the **CELL** Softkey to display 'CELL' data or select the **STRIKE** Softkey to display 'STRIKE' data. 'CELL' or 'STRIKE' is displayed in the mode box located in the upper left corner of the Stormscope Page.

NOTE: *"Cell mode" uses a clustering program to identify clusters of electrical activity that indicate cells.*

Change the Viewing Mode Between 360˚ and 120˚

1) Select the Stormscope Page.
2) Select the **VIEW** Softkey. The **360** and **ARC** Softkeys are displayed. Select the **360** Softkey to display a 360˚ viewing area or select the **ARC** Softkey to display a 120˚ viewing area.

   Select the **CLEAR** Softkey to remove all Stormscope lightning data from the display.

SIRIUSXM WEATHER (OPTIONAL)

WARNING: *Use of SiriusXM Weather for hazardous weather penetration is not recommended. Weather information provided by SiriusXM Radio Service is approved only for weather avoidance, not penetration.*

Displaying SiriusXM Weather on the Navigation Map Page

1) Select the **MAP** Softkey.
2) Select the **NEXRAD** or **XM LTNG** Softkey to display the desired weather. Select the applicable softkey again to remove weather data from the Navigation Map Page.

Display METAR and TAF information on the Airport Information Page

1) Turn the large **FMS** Knob to select the WPT Page Group.
2) Turn the small **FMS** Knob to select the Airport Information Page.
3) Select the **WX** Softkey to display METAR and TAF text (METAR and TAF information is updated every 12 minutes).

Switching Between XM WX, and GFDS Weather Sources

1) Turn the large **FMS** Knob on the MFD to select the MAP page group.
2) Turn the small **FMS** Knob to select the desired Weather Data Link Page.
3) Press the **MENU** Key.
4) Turn the large **FMS** Knob to select 'Display XM Weather', or 'Display GFDS Weather' and press the **ENT** Key.

Displaying Weather on the Weather Data Link Page

1) Turn the large **FMS** Knob to select the Map Page Group.
2) Turn the small **FMS** Knob to select the Weather Data Link Page.
3) Press the available softkeys to select the desired XM WX product.
4) Press the **LEGEND** Softkey to view the legends for the selected products. If necessary, turn either **FMS** Knob to scroll through the list. Press the small **FMS** Knob or the **ENT** Key to return to the map.

Map Panning Information – Weather Data Link Page

1) Push in the **Joystick** to display the panning arrow.
2) Move the **Joystick** to place the panning arrow on AIRMETs, TFRs, METARs, SIGMETs, PIREPs or AIREPs.
3) Press the **ENT** Key to display pertinent information for the selected product.

   Note that pressing the **ENT** Key when panning over an AIRMET or a SIGMET displays an information box that shows the text of the report. Panning over an airport with METAR information does not display more information but allows the user to press the **ENT** Key and select that Airport's Information Page to display the text of the report. Pressing the **ENT** Key when panning over a TFR displays TFR specific information.

XM Weather Products and Symbols

Wx Product Status Icons	Description
	**NEXRAD** - Available for the US and Canada. The age of the displayed data for each is shown at the right.
	**ECHO TOP** - The age of the displayed data is shown at the right. Not displayed when CLOUD TOP is displayed.
	**CLOUD TOP** - The age of the displayed data is shown at the right. Not displayed when ECHO TOP is displayed.
	**XM LIGHTNING** - The age of the displayed data is shown at the right.
	**CELL MOVEMENT** - The age of the displayed data is shown at the right.
	**SIGMET & AIRMET** - The age of the displayed data for each is shown at the right.
	**METAR** - Available for the US and Canada. The age of the displayed data for each is shown at the right.
	**SURFACE ANALYSIS with CITY FORECAST** - The upper symbol depicts Surface Analysis. The lower symbol depicts City Forecast. The age of the displayed data for each is shown at the right. The selected forecast period is shown at the bottom.

Wx Product Status Icons	Description
	**FREEZING LEVEL** - The age of the displayed data is shown at the right.
	**WINDS ALOFT** - Available for the US and Canada. The age of the displayed data for each is shown at the right. The altitude selection is shown at the bottom.
	**COUNTY WARNING** - The age of the displayed data is shown at the right.
	**CYCLONE WARNING** - The age of the displayed data is shown at the right.
	**AIREP** - The age of the displayed data is shown at the right.
	**PIREP** - The age of the displayed data is shown at the right. Urgent Pireps are displayed in yellow.
	**TURBULENCE** - The age of the displayed data is shown at the right. The altitude selection is shown at the bottom.
	**ICING POTENTIAL** - The age of the displayed data is shown at the right. The altitude selection is shown at the bottom.

WORLDWIDE WEATHER (IF EQUIPPED)

NOTE: *Garmin Flight Data Services Worldwide Weather provides information for avoiding hazardous weather. Do not utilize Worldwide Weather information to penetrate hazardous weather.*

Weather data is provided when the pilot initiates either a manual or automatic GFDS data request on the GFDS Weather Data Link Page on the MFD. No weather data is displayed until the first GFDS Weather Data Request is made.

Registering with Garmin Flight Data Services

A subscriber account must be established prior to receiving Worldwide Weather products. Contact Garmin Flight Data Services at https://fly.garmin.com/fly-garmin/support/applications/satelliteservices/ or by calling 1-866-739-5687 in the United States or (011) 913-440-1135.

After a subscriber account has been established, the system must be registered for data link features such as reporting services or GFDS Worldwide Weather. Registration is accomplished by entering the required access code. This process is only performed when initially setting up the system for GFDS services.

Registering the system for data link services

1) With the aircraft outside and having a clear view of the sky, turn the large **FMS** Knob on the MFD to select the AUX page group.
2) Turn the small **FMS** Knob to select the AUX-SYSTEM STATUS. Note the System ID number in the AIRFRAME field.
3) Turn the large **FMS** Knob to select the MAP Page group.
4) Turn the small **FMS** Knob to select the MAP-WEATHER DATA LINK Page.
5) Press the **MENU** Key. If necessary, select 'Display GFDS Weather'.
6) Press **ENT** Key. The 'GARMIN FLIGHT DATA SERVICE REGISTRATION' Window is now displayed.
7) Press the **MENU** Key. The Page Menu window is now displayed.
8) Using the **FMS** Knob enter the access code obtained from Garmin Flight Data Services in the ACCESS CODE field.
9) Press the **ENT** Key. REGISTER will now be highlighted.
10) Press the **ENT** Key. System registration is complete when 'REGISTERED' is displayed in the STATUS field.

Accessing GFDS Worldwide Weather Products

1) Turn the large **FMS** Knob to select the Map Page Group.
2) Turn the small **FMS** Knob to select the GFDS Weather Data Link Page.

When a weather product is selected for display on the GFDS Weather Data Link Page, a box containing a symbol for the product and its age (in minutes) are shown in the upper right. If weather data has not been requested, 'N/A' is shown next to the product symbol instead of age. The age of the weather product is based on the time difference between when the data was assembled on the ground and the current GPS time. Weather products are updated continuously or refreshed at specific intervals (defined in the **Refresh Rate** column in the following table).

If for any reason, a weather product is not refreshed within the defined **Expiration Time** intervals, the data is considered expired and is removed from the display. The age of the expired product is replaced by dashes. If more than half of the expiration time has elapsed, the color of the product age readout changes to yellow.

The refresh rate represents the interval at which the GFDS servers make available the most current known weather data. It does not necessarily represent the rate at which new content is received from weather sources.

Weather Product	Symbol	Expiration Time (Minutes)	Refresh Rate (Minutes)
Radar Precipitation (PRECIP)		30	U.S./Canada: 3* Europe: 15
Infrared Satellite (IR SAT)		60	30
Data Link Lightning (DL LTNG)		30	Continuous
SIGMETs/AIRMETs (SIG/AIR)		60	Continuous
Meteorological Aerodrome Report (METARs)		90	Continuous
Winds Aloft (WIND)		60	Continuous
Pilot Weather Report (PIREPs)		90	Continuous
Temporary Flight Restrictions (TFRs)	no product image	60	Continuous
Terminal Aerodrome Reports (TAFs)	no product image	60	Continuous

** The composite precipitation image is updated every 3 minutes, but individual radar sites may take between 3 and 10 minutes to provide new data.*

Setting Up and Customizing the GFDS Weather Data Link Page

1) Select the GFDS Weather Data Link Page.
2) Press the **MENU** Key.
3) With 'Weather Setup' highlighted, press the **ENT** Key.
4) Turn the small **FMS** Knob to select 'Product Group 1' or 'Product Group 2', and press the **ENT** Key.
5) Turn the large **FMS** Knob or press the **ENT** Key to scroll through product selections.
6) Turn the small **FMS** Knob to scroll through options for each product (ON/ OFF, range settings, etc.).
7) Press the **ENT** Key to select an option.
8) Press the **FMS** Knob or **CLR** Key to return to the GFDS Weather Data Link Page with the changed settings.

Restoring Default GFDS Weather Data Link Page Settings

1) Select the GFDS Weather Data Link Page.
2) Press the **MENU** Key.
3) With 'Weather Setup' highlighted, press the **ENT** Key.
4) Press the **MENU** Key.
5) Highlight the desired default(s) to restore (all or for selection) and press **ENT** Key.

Switching Between GFDS, and XM Weather Sources

1) Turn the large **FMS** Knob on the MFD to select the MAP page group.
2) Turn the small **FMS** Knob to select the desired Weather Data Link Page.
3) Press the **MENU** Key.
4) Turn the large **FMS** Knob to select 'Display GFDS Weather', or 'Display XM Weather' (choice dependent on current weather source) and press the **ENT** Key.

Viewing Legends for Displayed GFDS Weather Products

1) Select the GFDS Weather Data Link Page.
2) Select the **LEGEND** Softkey to display the legends for the displayed weather products.

   Or:

   a) Press the **MENU** Key.

   b) Select 'Weather Legend' and press the **ENT** Key.
3) Turn the **FMS** Knob to scroll through the legends if more are available than fit in the window.
4) To remove the Legend Window, select the **LEGEND** Softkey, the **ENT** or the **CLR** Key, or press the **FMS** Knob.

Setting Up and Customizing Weather Data for the Navigation Map Page

1) Select the Navigation Map Page.
2) Press the **MENU** Key.
3) With 'Map Setup' highlighted, press the **ENT** Key.
4) Turn the small **FMS** Knob to select the 'Weather' Group and press the **ENT** Key.
5) Turn the large **FMS** Knob or press the **ENT** Key to scroll through product selections.
6) Turn the small **FMS** Knob to scroll through options for each product (ON/OFF, range settings).
7) Press the **ENT** Key to select an option.
8) Press the **FMS** Knob or **CLR** Key to return to the Navigation Map Page with the changed settings.

GFDS Weather Data Requests

The GFDS Data Request window provides the flight crew with the options to define the requested weather coverage area(s), choose automatic weather update intervals (if desired), and the ability to send or cancel weather data requests. The window also displays the status of the GFDS data request process.

Requesting GFDS Weather Data Manually

1) Select the GFDS Weather Data Link Page.
2) Press the **MENU** Key.
3) With 'GFDS Weather Request' highlighted, press the **ENT** Key.
4) Turn the large **FMS** Knob to highlight the desired coverage option(s) and press the **ENT** Key to check or uncheck one of more of the following coverage selections:
   - PRESENT POSITION – Requests data based on current location.
   - DESTINATION – Requests data based on active flight plan destination (if the flight plan contains no destination, dashes '------" are displayed.)
   - FPL – Requests data based on active flight plan. Turn the small **FMS** Knob to select the desired flight plan look-ahead distance option (or choose 'REMAINING FPL' to request the remainder of the flight plan).
   - WAYPOINT – Requests data based on any valid waypoint.
5) Turn the large **FMS** Knob highlight to the 'DIAMETER / RTE WIDTH' distance field and turn the small **FMS** Knob to select the desired diameter and route width of the request, then press the **ENT** Key.
6) Turn the large **FMS** Knob until the 'SEND REQ' button is highlighted. Press the **ENT** Key to initiate the request immediately or press the **FMS** Knob to return to the GFDS Data Link Page without requesting data.

During a GFDS Data Request, the Request Status box initially displays "Contacting GFDS...". Once a connection is established, the Request Status Box displays "Receiving Wx Data... Time Remaining:" with an estimated data transfer time (either minutes or seconds). If desired, the GFDS Data Request window may be closed while the data request is processing by pressing the **FMS** Knob; the data request will continue to process in the background. GFDS Data Requests typically take between 1 to 4 minutes to complete depending on the size of the selected weather coverage area and Iridium signal strength.

The system retrieves all available Worldwide Weather products within the selected coverage area during an initial GFDS Data Request, regardless of which products (if any) are currently enabled for display. On subsequent requests, previously retrieved textual data (such as METARs and TAFs) is retained if it has not expired, while new textual weather data matching the current coverage area and all graphical weather data is downloaded during every data request.

If the system cannot complete a GFDS weather data request, one or more messages will appear in the request status window as shown in the following table.

Weather Request Status Message	Description
Auto requests inhibited Send manual request to reset.	The system has disabled automatic weather data requests due to excessive errors. Automatic weather data requests have stopped. Send a manual weather data request to resume automatic updates.
Auto update retry: ## Seconds	The system will attempt another automatic weather data request after an error occurred during the previous request. Timer counts down until the next automatic request occurs.
GFDS Comm Error [2]	A communications error has occurred with the GIA. The system should be serviced.
GFDS Comm Error [4]	This occurs if multiple automatic weather data requests have recently failed, or the GDL 59 or a GIA is off-line.
GFDS Comm Error [5]	The Iridium or GFDS networks are not accessible. Check Iridium signal strength. If this error persists, the system should be serviced.
GFDS Comm Error [6]	A communications error has occurred. It this error persists, the system should be serviced.
GFDS Comm Error [7]	A weather data transfer has timed out. Check Iridium signal strength and re-send the data request.
GFDS Comm Error [8]	A server error has occurred or invalid data received.
GFDS Login Invalid	There is a problem with the GFDS registration. Contact Garmin Flight Data Services at 1-866-739-5687 in the United States or (011) 913-440-1135 for assistance.
GFDS Server Temporarily Inop	The GFDS weather data server is temporarily out of service, but is expected to return to service in less than 30 minutes.
GFDS Server Inop	The GFDS weather data server will be out of service for at least 30 minutes.

Weather Request Status Message	Description
Invalid Coverage Area	The weather data request coverage area does not contain at least one of the following: a waypoint, a flight plan, or a flight plan destination. Verify at least one of the coverage options is enabled (checked) and contains required criteria, then re-send the data request.
No GFDS Subscription	The system is not be currently subscribed to GFDS, or the access code is incorrect. Verify the access code. Contact Garmin Flight Data Services at 1-866-739-5687 in the United States or (011) 913-440-1135 for assistance.
Reduce Request Area	The GFDS weather data request area exceeds size limits. Reduce weather coverage area and re-send data request.
Request Cancelled	The user has cancelled a GFDS weather data request.
Requested area too large. Reduce coverage area.	The size of the GFDS weather data request has exceeded limits. Reduce the size of the coverage area and try the weather data request again.
Request Failed - Try Again	The weather data request timed-out. Re-send data request.
Transfer Preempted	The data link is busy. Retry request later.

Cancelling a GFDS Weather Data Request in Progress

1) Select the GFDS Weather Data Link Page.
2) Press the **MENU** Key.
3) With 'GFDS Data Request' highlighted, press the **ENT** Key.
4) Turn the large **FMS** Knob to select 'CANCEL REQ' and press the **ENT** Key. The request status box indicates 'Request Cancelled'.
5) Press the **FMS** Knob to return to the GFDS Weather Data Link Page.

Enabling Automatic GFDS Data Requests

1) Select the GFDS Weather Data Link Page.
2) Press the **MENU** Key.
3) With 'GFDS Weather Request' highlighted, press the **ENT** Key.

4) Choose the desired weather coverage options.

5) Turn the large **FMS** Knob to select the 'UPDATE RATE' setting. Then turn the small **FMS** Knob to highlight the desired automatic update frequency (OFF, 5 Min, 10 Min, 15 Min, 20 Min, 25 Min, 30 Min, 45 Min, or 60 Min), then press the **ENT** Key.

6) The 'SEND REQ" button is highlighted and a countdown timer is displayed in the 'REQUEST STATUS' based on the currently selected update rate. Press the **ENT** Key to immediately send an immediate GFDS Data Request.

   Or:

   Press the **FMS** Knob to return to the GFDS Weather Data Link Page.

Worldwide Weather Products

Precipitation

Precipitation data is not real-time. The lapsed time between collection, processing, and dissemination of radar images can be significant and may not reflect the current radar synopsis. Due to the inherent delays and the relative age of the data, it should be used for long-range planning purposes only.

***NOTE:** Precipitation data cannot be displayed on the Navigation Map Page at the same time as terrain.*

Displaying Precipitation Weather Information

1) Select the **MAP** Softkey (for the PFD Inset Map, select the **INSET** Softkey). This step is not necessary on the GFDS Weather Data Link Page.

2) Select the **PRECIP** Softkey.

Radar data shown represents lowest level, base reflectivity, of radar returns. The display of the information is color-coded to indicate the weather severity level. All weather product legends can be viewed on the GFDS Weather Data Link Page. For the Precipitation legend, select the **LEGEND** Softkey when Precipitation is selected for display.

Precipitation Limitations

Radar images may have certain limitations:

- Radar base reflectivity does not provide sufficient information to determine cloud layers or precipitation characteristics (wet hail vs. rain). For example, it is not possible to distinguish between wet snow, wet hail, and rain.
- Radar base reflectivity is sampled at the minimum antenna elevation angle. An individual radar site cannot depict high altitude storms at close ranges. It has no information about storms directly over the site.
- When zoomed in to a range of 30 nm, each square block on the display represents an area of four square kilometers.

The following may cause abnormalities in displayed radar images:

- Ground clutter
- Strobes and spurious radar data
- Sun strobes (when the radar antenna points directly at the sun)
- Interference from buildings or mountains, which may cause shadows
- Metallic dust from military aircraft, which can cause alterations in radar scans

Infrared Satellite

Infrared Satellite (IR SAT) data depicts cloud top temperatures from satellite imagery. Brighter cloud top colors indicate cooler temperatures occurring at higher altitudes.

Displaying Cloud Tops information

1) Select the GFDS Weather Data Link Page.
2) Select the **IR SAT** Softkey.

To display the Infrared Satellite legend, select the **LEGEND** Softkey when Infrared Satellite data is selected for display.

Data Link Lightning

Lightning data shows the approximate location of cloud-to-ground lightning strikes. A strike icon represents a strike that has occurred within a two-kilometer region. Neither cloud-to-cloud nor the exact location of the lightning strike is displayed.

If the aircraft is also equipped with an on-board lightning detection system (e.g., L-3 WX-500 Stormscope®), only one lightning product may be enabled for display at a time.

Displaying Data Link Lightning information

1) Select the **MAP** Softkey (for the PFD Inset Map, select the **INSET** Softkey). This step is not necessary on the GFDS Weather Data Link Page.
2) Select the **DL LTNG** Softkey.

To display the Data Link Lightning legend on the Weather Data Link Page, select the **LEGEND** Softkey when Data Link Lightning is selected for display.

SIGMETs and AIRMETs

The entire SIGMET or AIRMET is displayed as long as any portion of it is occurring within the coverage area of the GFDS data request.

Displaying SIGMETs and AIRMETs

1) Select the GFDS Weather Data Link Page.
2) Select the **SIG/AIR** Softkey.
3) To view the text of the SIGMET or AIRMET, press the **RANGE** Knob and move the Map Pointer over the icon.
4) Press the **ENT** key.

To display the SIGMET and AIRMET legend, select the **LEGEND** Softkey when SIGMETs and AIRMETs are selected for display.

METARs and TAFs

***NOTE:** METAR information is only displayed within the installed navigation database service area.*

METAR and TAF text are displayed on the WPT-Weather Information Page. TAF information is displayed in its raw form when it is available.

Displaying METAR and TAF text

1) On the GFDS Weather Data Link Page, select the **METAR** Softkey.
2) Press the **RANGE** Knob and pan to the desired airport.
3) Press the **ENT** Key. The Weather Information Page is shown with METAR and TAF text.
4) Use the **FMS** Knob or the **ENT** Key to scroll through the METAR and TAF text. METAR text must be completely scrolled through before scrolling through the TAF text.

5) Press the **FMS** Knob or the **CLR** Key to return to the GFDS Weather Data Link Page.

Or:

1) Select the Weather Information Page.
   a) Turn the large **FMS** Knob to select the Waypoint Page Group.
   b) Select the **WX** Softkey to select the Weather Information Page.
2) Press the **FMS** Knob to display the cursor.
3) Use the **FMS** Knob to enter the desired airport and press the **ENT** Key.
4) Use the **FMS** Knob or the **ENT** Key to scroll through the METAR and TAF text. Note that the METAR text must be completely scrolled through before scrolling through the TAF text.

To display the METAR legend on the GFDS Weather Data Link Page, select the **LEGEND** Softkey when METARs are selected for display.

Winds Aloft

Winds Aloft data shows the forecasted wind speed and direction at the surface and at selected altitudes. Altitude can be displayed in 3,000-foot increments up to 42,000 feet MSL.

Displaying Winds Aloft data

1) Select the GFDS Weather Data Link Page.
2) Select the **MORE WX** Softkey.
3) Select the **WIND** Softkey.
4) Select the desired altitude level: SFC (surface) up to 42,000 feet. Select the **NEXT** or **PREV** Softkey to cycle through the altitude softkeys. The **WIND** Softkey label changes to reflect the altitude selected.

To display the Winds Aloft legend, select the **LEGEND** Softkey when Winds Aloft is selected for display.

PIREPs

Pilot Weather Reports (PIREPs) describe in-flight weather encountered by pilots. A PIREP may contain unforecast adverse weather conditions, such as low in-flight visibility, icing conditions, wind shear, turbulence, and type of aircraft flown. PIREPs are issued as either Routine (UA) or Urgent (UUA).

Displaying PIREP text

1) Select the GFDS Weather Data Link Page.
2) Select the **MORE WX** Softkey.
3) Select the **PIREPS** Softkey.
4) Press the **RANGE** Knob and pan to the desired weather report. A gray circle will appear around the weather report when it is selected.
5) Press the **ENT** Key. The PIREP text is first displayed in a decoded fashion, then as raw text.
6) Use the **FMS** Knob or the **ENT** Key to scroll through the PIREP text.
7) Press the **FMS** Knob or the **CLR** Key to close the PIREP text window and return to the GFDS Weather Data Link Page.

To display the PIREP or AIREP legend, select the **LEGEND** Softkey when PIREPs or AIREPs are selected for display.

The PIREP color is determined by the type (routine or urgent).

AIRBORNE COLOR WEATHER RADAR (IF EQUIPPED)

WARNING: *Begin transmitting only when it is safe to do so. If it is desired to transmit while the aircraft is on the ground, no personnel or objects should be within 11 feet of the antenna.*

CAUTION: *In Standby Mode, the antenna is parked at the center line. It is always a good idea to put the radar in Standby Mode before taxiing the aircraft to prevent the antenna from bouncing on the bottom stop and possibly causing damage to the radar assembly.*

Displaying Weather on the Weather Radar Page

1) Turn the large **FMS** Knob to select the Map Page Group.
2) Turn the small **FMS** Knob to select the Weather Radar Page.
3) Select the **MODE** Softkey.
4) If the aircraft is on the ground, select the **STANDBY** Softkey to initiate the one minute warm-up period. After the warm-up is complete, the radar will enter the Standby Mode. After the aircraft is airborne, select the **WEATHER** Softkey.

Or:

If the aircraft is already airborne, select the **WEATHER** or **GROUND** Softkey. The one-minute warm-up period will be initiated, after which the radar will begin transmitting. The horizontal scan is initially displayed.

5) Turn the **Joystick** to select the desired range.

6) If desired, select the **VERTICAL** Softkey for vertical scanning.

Adjusting Antenna Tilt

Move the **Joystick** up or down to adjust the tilt of the antenna up or down. Monitor the displayed tilt value in the TILT field.

When scanning vertically, a Tilt Line may be displayed to aid in positioning the tilt of the antenna. If the Tilt Line is not displayed, perform the following steps:

1) Press the **MENU** Key
2) Turn the large **FMS** Knob to select 'Show Tilt Line'.
3) Press the **ENT** Key.

Adjusting Antenna Bearing

Move the **Joystick** right or left to adjust the azimuth position of the antenna right or left. Monitor the displayed bearing value in the BEARING field.

When scanning horizontally, a Bearing Line may be displayed to aid in positioning the antenna for the vertical scan. If the Bearing Line is not displayed, perform the following steps:

1) Press the **MENU** Key
2) Turn the large **FMS** Knob to select 'Show Bearing Line'.
3) Press the **ENT** Key.

Vertically Scan a Storm Cell

1) While in the Horizontal Scan view, move the **Joystick** to place the Bearing Line on the desired storm cell, or other area, to be vertically scanned.
2) Select the **VERTICAL** Softkey. A vertical "slice" of the selected area will now be displayed.
3) Move the **Joystick** right or left to move the scanned "slice" a few degrees right or left.

4) Turn the **Joystick** to adjust the range.

5) To select a new area to be vertically scanned, select the **HORIZON** Softkey to return to the Horizontal Scan view and repeat the previous steps.

Adjusting Gain

WARNING: *Changing the gain in Weather Mode will cause precipitation intensity to be displayed as a color not representative of the true intensity. Remember to return the gain setting to 'Calibrated' for viewing the actual intensity of precipitation.*

1) Select the **GAIN** Softkey to activate the cursor in the 'GAIN' field.

2) Turn the small **FMS** Knob to adjust the gain for the desirable level. The gain setting is visible in the gain field as a movable horizontal bar in a flashing box. The line pointer is a reference depicting the calibrated position.

3) Press the **FMS** Knob to remove the cursor.

4) Select the **GAIN** Softkey again to recalibrate the gain. 'CALIBRATED' will be displayed in the 'GAIN' field.

Ground Mapping

1) Select the **MODE** Softkey.

2) Select the **GROUND** Softkey to place the radar in Ground Map Mode.

3) Select the **BACK** Softkey.

Sector Scan

1) While in the Horizontal Scan Mode, move the **Joystick** right or left to place the Bearing Line in the desired position. The location of the Bearing Line will become the center point of the Sector Scan.

2) Press the **FMS** Knob to display the cursor.

3) Turn the large **FMS** Knob to place the cursor in the SECTOR SCAN field.

4) Turn the small **FMS** Knob to select FULL, 60˚, 40˚, or 20˚ scan.

5) If desired, readjust the Bearing Line with the **Joystick** to change the center of the Sector Scan.

6) Press the **FMS** Knob to remove the cursor.

Antenna Stabilization

1) To activate or deactivate the antenna stabilization, select the **MODE** Softkey.
2) Select the **STAB ON** Softkey to activate antenna stabilization or select the **STAB OFF** Softkey to deactivate. The current stabilization condition is shown in the upper right of the weather radar display.

Weather Attenuated Color Highlight (WATCH®)

To activate or deactivate the WATCH® feature, select the **WATCH** Softkey. This feature is only available in the Horizontal Scan Mode.

Weather Alert

To activate or deactivate Weather Alert, select the **WX ALRT** Softkey. Activating and deactivating will also enable or inhibit the alert on the PFD.

Automatic Standby

When the weather radar system is in the Weather or Ground Map Mode, upon landing the system will automatically switch to Standby Mode.

TRAFFIC SYSTEMS

WARNING: *Traffic information shown on the G1000 Multi Function Display is provided as an aid in visually acquiring traffic. Pilots must maneuver the aircraft based only upon ATC guidance or positive visual acquisition of conflicting traffic.*

- If Traffic information Service (TIS) is configured, a **STANDBY**, **OPERATE**, and **TNA MUTE** Softkey is displayed.
- If a Traffic Advisory System (TAS) is configured, a **STANDBY**, **OPERATE**, **TEST**, and **ALT MODE** Softkey is displayed.

Traffic Symbol	Description
	Non-Threat Traffic (intruder is beyond 5 nm and greater than 1200' vertical separation)
	Proximity Advisory (PA) (TAS only, not available with TIS) (intruder is within 5 nm and less than 1200' vertical separation)
	Traffic Advisory (TA) (closing rate, distance, and vertical separation meet TA criteria)
	Traffic Advisory Off Scale

Traffic Symbol Description

Traffic Information Service (TIS)

NOTE: *If the G1000 is configured to use a Traffic Advisory System (TAS), TIS is not available for use.*

NOTE: *Traffic Information Service (TIS) is only available when the aircraft is within the service volume of a TIS capable terminal radar site.*

Displaying Traffic on the Traffic Map Page

1) Turn the large **FMS** Knob to select the Map Page Group.
2) Turn the small **FMS** Knob to select the Traffic Map Page.
3) Select the **OPERATE** Softkey to begin displaying traffic. 'OPERATING' is displayed in the Traffic Mode field.

4) Select the **STANDBY** Softkey to place the system in the Standby Mode. 'STANDBY' is displayed in the Traffic Mode field.

5) Rotate the **Joystick** clockwise to display a larger area or rotate counter-clockwise to display a smaller area.

6) Select the **TNA MUTE** Softkey to mute the "Traffic Not Available" aural alert.

Displaying Traffic on the Navigation Map

1) Ensure TIS is operating. With the Navigation Map displayed, select the **MAP** Softkey.

2) Select the **TRAFFIC** Softkey. Traffic is now displayed on the map.

Traffic Advisory System (TAS) (If Equipped)

System Self Test

1) Set the range to 2/6 nm.

2) Select the **STANDBY** Softkey.

3) Select the **TEST** Softkey.

4) Self test takes approximately eight seconds to complete. When completed successfully, traffic symbols are displayed and a voice alert "TAS System Test OK" is heard. If the self test fails, the system reverts to Standby Mode and a voice alert "TAS System Test Fail" is heard.

Displaying Traffic on the Traffic Map Page

1) Turn the large **FMS** Knob to select the Map Page Group.

2) Turn the small **FMS** Knob to select the second rectangular page icon.

3) Select the **NORMAL** Softkey to begin displaying traffic. 'OPERATING' is displayed in the Traffic Mode field.

4) Select the **ALT MODE** Softkey to change the altitude volume. Select the desired altitude volume by selecting the **BELOW**, **NORMAL**, **ABOVE**, or **UNREST** (unrestricted) Softkey. The selection is displayed in the Altitude Mode field.

5) Select the **STANDBY** Softkey to place the system in the Standby Mode. 'STANDBY' is displayed in the Traffic Mode field.

6) Rotate the **Joystick** clockwise to display a larger area or rotate counter-clockwise to display a smaller area.

Displaying Traffic on the Navigation Map

1) Ensure TAS is operating.
2) With the Navigation Map displayed, select the **MAP** Softkey.
3) Select the **TRAFFIC** Softkey. Traffic is now displayed on the map.

TERRAIN AND OBSTACLE PROXIMITY

NOTE: *Terrain data is not displayed when the aircraft latitude is greater than 75 degrees north or 60 degrees south.*

Displaying Terrain and Obstacles on the Terrain Proximity Page

1) Turn the large **FMS** Knob to select the Map Page Group.
2) Turn the small **FMS** Knob to select the last rectangular page icon.
3) If desired, select the **VIEW** Softkey to access the **ARC** and **360** Softkeys. When the **ARC** Softkey is selected, a radar-like 120° view is displayed. Select the **360** Softkey to return to the 360° default display.
4) Rotate the **Joystick** clockwise to display a larger area or rotate counter-clockwise to display a smaller area.

Color	Terrain/Obstacle Location
Red	Terrain/Obstacle above or within 100' below current aircraft altitude.
Yellow	Terrain/Obstacle between 100' and 1000' below current aircraft altitude.
Black	Terrain/Obstacle is more than 1000' below aircraft altitude.

Displaying Terrain and Obstacles on the Navigation Map

1) With the Navigation Map displayed, select the **MAP** Softkey.
2) Select the **TERRAIN** Softkey. Terrain and obstacle proximity will now be displayed on the map.

TERRAIN-SVS (IF EQUIPPED)

NOTE: *Terrain-SVS is only available when the Synthetic Vision System (SVS) option is installed and the TAWS option has not been installed.*

NOTE: *Terrain data is not displayed when the aircraft latitude is greater than 75 degrees north or 60 degrees south.*

Display Terrain on the TERRAIN-SVS Page

1) Turn the large **FMS** Knob to select the Map Page Group.
2) Turn the small **FMS** Knob to select the Terrain-SVS Page.
3) If desired, select the **VIEW** Softkey to access the **ARC** and **360** softkeys. When the **ARC** Softkey is selected, a radar-like 120° view is displayed. Select the **360** Softkey to return to the 360° default display.
4) Rotate the **Joystick** clockwise to display a larger area or rotate counter-clockwise to display a smaller area.

Color	Terrain/Obstacle Location
Red	Terrain/Obstacle above or within 100' below current aircraft altitude.
Yellow	Terrain/Obstacle between 100' and 1000' below current aircraft altitude.
Black	Terrain/Obstacle is more than 1000' below aircraft altitude.

Enable/Disable Aviation Data

1) While the Terrain-SVS Page is displayed, press the **MENU** Key.
2) Turn the small **FMS** Knob to select "Show (or Hide) Aviation Data".
3) Press the **ENT** Key.

Terrain-SVS Inhibit

Inhibit Terrain

While the Terrain-SVS Page is displayed, select the **INHIBIT** Softkey.

Or:

1) Press the **MENU** Key.
2) Turn the small **FMS** Knob to select 'Inhibit Terrain'.
3) Press the **ENT** Key.

Enable Terrain

While the Terrain-SVS Page is displayed, select the **INHIBIT** Softkey.

Or:

1) While the Terrain-SVS Page is displayed, press the **MENU** Key.
2) Turn the small **FMS** Knob to select 'Enable Terrain'.
3) Press the **ENT** Key.

NOTE: *If Terrain-SVS alerts are inhibited when the Final Approach Fix is the active waypoint in a GPS SBAS approach, a LOW ALT annunciation may appear on the PFD next to the altimeter if the current aircraft altitude is at least 164 feet below the prescribed altitude at the Final Approach Fix.*

TERRAIN AWARENESS & WARNING SYSTEM (TAWS-B) DISPLAY (IF EQUIPPED)

WARNING: *The TAWS-B display shows supplemental information only. It should not be used for navigation.*

NOTE: *Terrain data is not displayed when the aircraft latitude is greater than 75 degrees north or 60 degrees south.*

NOTE: *TAWS-B operation is only available when the system is configured for a TAWS-B installation.*

Manual System Test

1) While the TAWS-B Page is displayed, press the **MENU** Key.
2) Turn the small **FMS** Knob to select 'Test TAWS'.
3) Press the **ENT** Key. During the test 'TAWS TEST' is displayed in the center of the TAWS-B Page.

   When all is in working order, "TAWS System Test, OK" is heard.

Display Terrain and Obstacles on the TAWS-B Page

1) Turn the large **FMS** Knob to select the Map Page Group.
2) Turn the small **FMS** Knob to select the TAWS-B Page.
3) If desired, select the **VIEW** Softkey to access the **ARC** and **360** softkeys. When the **ARC** Softkey is selected, a radar-like 120° view is displayed. Select the **360** Softkey to return to the 360° default display.
4) Rotate the **Joystick** clockwise to increase the display range or rotate counter-clockwise to decrease the display range.

Color	Terrain/Obstacle Location
Red	Terrain/Obstacle above or within 100' below current aircraft altitude.
Yellow	Terrain/Obstacle between 100' and 1000' below current aircraft altitude.
Black	Terrain/Obstacle is more than 1000' below aircraft altitude.

Enable/Disable Aviation Data

1) While the TAWS-B Page is displayed, press the **MENU** Key.
2) Turn the small **FMS** Knob to select "Show (or Hide) Aviation Data".
3) Press the **ENT** Key.

TAWS Inhibit

NOTE: *If TAWS alerts are inhibited when the Final Approach Fix is the active waypoint in a GPS SBAS approach, a LOW ALT annunciation may appear on the PFD next to the altimeter if the current aircraft altitude is at least 164 feet below the prescribed altitude at the Final Approach Fix.*

Inhibit TAWS-B

While the TAWS-B Page is displayed, select the **INHIBIT** Softkey.

Or:

1) Press the **MENU** Key.
2) Turn the small **FMS** Knob to select 'Inhibit TAWS'.
3) Press the **ENT** Key.

Enable TAWS-B

While the TAWS-B Page is displayed, select the **INHIBIT** Softkey.

Or:

1) While the TAWS-B Page is displayed, press the **MENU** Key.
2) Turn the small **FMS** Knob to select 'Enable TAWS'.
3) Press the **ENT** Key.

Displaying Terrain and Obstacles on the Navigation Map

1) With the Navigation Map displayed, select the **MAP** Softkey.
2) Select the **TERRAIN** Softkey. Terrain and obstacles will now be displayed on the map.
3) Terrain and obstacles may also be viewed on the Flight Plan Profile View by selecting the **PROFILE** Softkey.

Blank Page

ADDITIONAL FEATURES

SYNTHETIC VISION

WARNING: *Use appropriate primary systems for navigation, and for terrain, obstacle, and traffic avoidance. SVS is intended as an aid to situational awareness only and may not provide either the accuracy or reliability upon which to solely base decisions and/or plan maneuvers to avoid terrain, obstacles, or traffic.*

Synthetic Vision System (SVS) functionality (if equipped) is an enhancement to the G1000 Integrated Flight Deck.

SVS is primarily comprised of a computer-generated forward-looking, attitude aligned view of the topography immediately in front of the aircraft from the pilot's perspective. SVS information is shown on the primary flight display (PFD).

SVS offers a three-dimensional view of terrain and obstacles. Terrain and obstacles that pose a threat to the aircraft in flight are shaded yellow or red.

In addition to SVS enhancement to the PFD, the following feature enhancements have been added to the PFD:

- Pathways
- Flight Path Marker
- Horizon Heading Marks
- Terrain and Obstacle Alerting
- Three-dimensional Traffic
- Airport Signs
- Runway Display

Displaying Synthetic Terrain

1) Select the **PFD** Softkey.
2) Select the **SYN VIS** Softkey.
3) Select the **SYN TERR** Softkey.
4) Select the **BACK** Softkey to return to the previous page.

Displaying Pathways

1) Select the **PFD** Softkey.
2) Select the **SYN VIS** Softkey.
3) If not already enabled, select the **SYN TERR** Softkey.
4) Select the **PATHWAY** Softkey.
5) Select the **BACK** Softkey to return to the previous page.

Displaying Heading on the Horizon

1) Select the **PFD** Softkey.
2) Select the **SYN VIS** Softkey.
3) If not already enabled, select the **SYN TERR** Softkey.
4) Select the **HRZN HDG** Softkey.
5) Select the **BACK** Softkey to return to the previous page.

Displaying Airport Signs

1) Select the **PFD** Softkey.
2) Select the **SYN VIS** Softkey.
3) If not already enabled, select the **SYN TERR** Softkey.
4) Select the **APTSIGNS** Softkey.
5) Select the **BACK** Softkey to return to the previous page.

TERMINAL PROCEDURE CHARTS

NOTE: With the availability of SafeTaxi®, ChartView, or FliteCharts®, it may be necessary to carry another source of charts on-board the aircraft.

SafeTaxi®

SafeTaxi® is an enhanced feature that gives greater map detail as the map range is adjusted in on the airport. The airport display on the map reveals runways with numbers, taxiways identifiers, and airport landmarks including ramps, buildings, control towers, and other prominent features. Resolution is greater at lower map ranges. The aircraft symbol provides situational awareness while taxiing.

Selecting the **DCLTR** Softkey (declutter) once removes the taxiway markings and airport identification labels. Selecting the **DCLTR** Softkey twice removes VOR station

ID, the VOR symbol, and intersection names if within the airport plan view. Selecting the **DCLTR** Softkey a third time removes the airport runway layout, unless the airport in view is part of an active route structure. Selecting the **DCLTR** Softkey again cycles back to the original map detail.

The SafeTaxi database contains detailed airport diagrams for selected airports. These diagrams provide the pilot with situational awareness by displaying the aircraft position in relation to taxiways, ramps, runways, terminals, and services. This information should not be used by the pilot as the basis for maneuvering the aircraft on the ground. This database is updated on a 56-day cycle.

ChartView

ChartView resembles the paper version of Jeppesen terminal procedures charts. The charts are displayed in full color with high-resolution. The MFD depiction shows the aircraft position on the moving map in the plan view of most approach charts and on airport diagrams.

The ChartView database is updated on a 14-day cycle. If the ChartView database is not updated within 70 days of the expiration date, ChartView will no longer function.

FliteCharts®

FliteCharts® resemble the paper version of AeroNav Services terminal procedures charts. The charts are displayed with high-resolution and in color for applicable charts. Current aircraft position is not displayed on FliteCharts.

The FliteCharts database contains procedure charts for the United States only. This database is updated on a 28-day cycle. If not updated within 180 days of the expiration date, FliteCharts will no longer function.

View Charts from the Navigation Map Page

1) Select the **SHW CHRT** Softkey when displayed.

Or:

Move the map pointer to point to a desired point on the map and select the **SHW CHRT** Softkey.

2) Select the **DP, STAR, APR, WX,** and **NOTAM** softkeys to access charts for departures, arrivals, approaches, weather and NOTAMs Note that NOTAMS are only available with ChartView.

3) Select the **GO BACK** Softkey to return to the previous page.

View Charts from the Active Flight Plan Page

1) While viewing the Active Flight Plan Page, press the **FMS** Knob to activate the cursor.
2) Turn the large **FMS** Knob to select the departure airport, destination airport, departure, arrival, or approach.
3) Select the **SHW CHRT** Softkey. The appropriate chart will be displayed, if available for the item selected.
4) Select the **GO BACK** Softkey to return to the previous page.

Change Day/Night View

1) While viewing a chart press the **MENU** Key to display the Page Menu OPTIONS.
2) Turn the large **FMS** Knob to highlight the 'Chart Setup' Menu Option and press the **ENT** Key.
3) Turn the large **FMS** Knob to move between the 'FULL SCREEN' and 'COLOR SCHEME' Options.
4) Turn the small **FMS** Knob to choose between the 'On' and 'Off' Full Screen Options.
5) Turn the small **FMS** Knob to choose between 'Day', 'Auto', and 'Night' Options.
6) In Auto Mode, turn the large **FMS** Knob to select the percentage field and change percentage with the small **FMS** Knob. The percentage of change is the day/night crossover point based on backlighting intensity.
7) Press the **FMS** Knob when finished to remove the Chart Setup Menu.

AIRPORT DIRECTORY

The AOPA or AC-U-KWIK Airport Directory adds enhanced airport information when viewing airports on the WPT-Airport Information Page.

The Airport Directory databases are revised every 56 days. Check fly.garmin.com for the current database.

View Airport Directory Information

While viewing the WPT-Airport Information Page, if necessary, select the **INFO-1** Softkey to change the softkey label to display **INFO-2**. Airport Directory information is displayed on the right half of the display.

SIRIUSXM SATELLITE RADIO ENTERTAINMENT

The XM Radio Page provides information and control of the audio entertainment features of the SiriusXM Satellite Radio.

Selecting the XM Radio Page

1) Turn the large **FMS** Knob to select the Auxiliary Page Group.
2) Turn the small **FMS** Knob to select the displayed AUX - XM Information Page.
3) Select the **RADIO** Softkey to show the XM Radio Page where audio entertainment is controlled.

Active Channel and Channel List

The Active Channel Box on the XM Radio Page displays the currently selected channel. The Channels List Box of the XM Radio Page shows a list of the available channels for the selected category.

Selecting a Category

The Category Box of the XM Radio Page displays the currently selected category of audio.

1) Select the **CATGRY** Softkey on the XM Radio Page.
2) Select the **CAT +** and **CAT -** softkeys to cycle through the categories.

   Or:

   Turn the small **FMS** Knob to display the 'Categories' list. Highlight the desired category with the small **FMS** Knob.
3) Press the **ENT** Key.

Select an Available Channel within the Selected Category

1) While on the XM Radio Page, select the **CHNL** Softkey.
2) Select the **CH +** Softkey to go up through the list in the Channel Box, or move down the list with the **CH –** Softkey.

   Or:

   Press the **FMS** Knob to highlight the channel list and turn the large **FMS** Knob to scroll through the channels.
3) With the desired channel highlighted, press the **ENT** Key.

Entering a Channel Directly

1) While on the XM Radio Page, select the **CHNL** Softkey.
2) Select the **DIR CH** Softkey. The channel number in the Active Channel Box is highlighted.
3) Select the numbered softkeys located on the bottom of the display to directly select the desired channel number.
4) Press the **ENT** Key to activate the selected channel.

Assigning Channel Presets

Up to 15 channels from any category can be assigned a preset number.

1) On the XM Radio Page, with the desired channel active, select the **PRESETS** Softkey to access the first five preset channels (**PS1 - PS5**).
2) Select the **MORE** Softkey to access the next five channels (**PS6 – PS10**), and again to access the last five channels (**PS11 – PS15**). Selecting the **MORE** Softkey repeatedly cycles through the preset channels.
3) Select any one of the (**PS1 - PS15**) softkeys to assign a number to the active channel.
4) Select the **SET** Softkey on the desired channel number to save the channel as a preset.

Adjusting Volume

1) With the XM Radio Page displayed, select the **VOL** Softkey.
2) Select the **VOL –** Softkey to reduce volume or select the **VOL +** Softkey to increase volume. (Once the **VOL** Softkey is selected, the volume can also be adjusted using the small **FMS** Knob.)
3) Select the **MUTE** Softkey to mute the audio. Select the **MUTE** Softkey again to unmute the audio.

Radio volume may also be adjusted at each passenger station.

SATELLITE TELEPHONE & SMS MESSAGING SERVICE (IF EQUIPPED)

Operation of these features in the cockpit is accomplished through the AUX-TELEPHONE, and the AUX-TEXT MESSAGING SETUP Pages.

Registering With Garmin Flight Data Services

A subscriber account must be established prior to using the Iridium Satellite System. Before setting up an Iridium account, obtain the serial number of the Iridium Transceiver (GSR1) and the SYSTEM ID by viewing the AUX- SYSTEM STATUS Page. Contact Garmin Flight Data Services at 1-866-739-5687 in the United States or (011) 913-440-1135.

Disable/Enable Iridium Transceiver

Iridium telephone may be turned on or off by performing the following steps.

To enable the Iridium telephone system:

1) With the AUX-TELEPHONE Page displayed, select the **MENU** Key on the MFD to display the Page Menu.
2) Turn either **FMS** Knob to place the cursor on 'Enable Iridium Transmission'.
3) Press the **ENT** Key.

To disable the Iridium telephone system:

1) With the AUX-TELEPHONE Page displayed, select the **MENU** Key on the MFD to display the Page Menu.
2) Turn either **FMS** Knob to place the cursor on 'Disable Iridium Transmission'.
3) Press the **ENT** Key.

Telephone Communication

The pilot or copilot can place and answer calls on the Iridium satellite network. Control and monitoring of telephone functions are accomplished through the AUX-TELEPHONE Page.

To view the Telephone Page:

1) Turn the large **FMS** Knob on the MFD to select the AUX page group.
2) Turn the small **FMS** Knob to select SATELLITE PHONE.

Internal Phone	External Phone	Description
		Phone is Idle
		Phone is ringing
		Phone has a dial tone (off hook) or connected to another phone
		Phone dialed is busy
		Phone is dialing another phone
		Phone has failed
		Phone status not known
		Phone is disabled
		Phone is reserved for data transmission
		Calling other phone or incoming call from other phone
		Other phone is on hold
		Phones are connected

Incoming Calls

When viewing MFD pages other than the AUX-TELEPHONE Page, a pop-up alert will be displayed. The pop-up alert may be inhibited at times, such as during takeoff. In addition to the pop-up alert, a ringing phone symbol will be displayed to the right of the MFD page title. Also, the voice alert "Incoming Call" will be heard on the selected cockpit audio.

***NOTE:** The Push-to-Talk switch is not utilized for telephone communication. The microphone is active after selecting the **ANSWER** Softkey, and stays active until the call is terminated.*

Answering an incoming call:

1) Press the **TEL** Key on the audio panel.
2) Select the **ANSWER** Softkey on the MFD.

Or:

While viewing the AUX-TELEPHONE Page:

1) Press the **TEL** Key on the audio panel.
2) Press the **MENU** Key to display the Page Menu.
3) Turn either **FMS** Knob to place the cursor on 'Answer Incoming Call'.
4) Press the **ENT** Key.

Selecting the **IGNORE** Softkey will extinguish the pop-up window and leave the current call unanswered. Selecting the **IGNRE ALL** Softkey will extinguish the pop-up window for the current and all future incoming calls and leave the current call unanswered. Selecting the **TEL** Softkey will display the AUX-TELEPHONE Page allowing additional call information to be viewed before answering.

Disabling incoming call alerts:

1) With the AUX-TELEPHONE Page displayed, press the **MENU** Key on the MFD to display the Page Menu.
2) Turn either **FMS** Knob to place the cursor on 'Disable Incoming Call Alerts'.
3) Press the **ENT** Key. The voice and pop-up alert will not be displayed now when an incoming call is received.

Outgoing Calls

Voice calls can be made from the cockpit through the Iridium Satellite Network.

To make a call:

1) Press the **TEL** Key on the audio panel.
2) Select the **DIAL** Softkey on the MFD.

   Or:

   While viewing the AUX-TELEPHONE Page:

   a) Press the **TEL** Key on the audio panel.

   b) Press the **MENU** Key to display the Page Menu.

   c) Turn either **FMS** Knob to place the cursor on 'Dial a Phone Call'.

   d) Press the **ENT** Key.
3) Enter the desired number string (typically, country code + area code + phone number) by selecting the number softkeys on the MFD, pressing the numeric keys on the PFD/MFD Controller, or turning the FMS Knobs. The GSR 56 may be configured by an authorized repair facility to automatically enter a default county code when the dialing window is displayed. To replace the default country code, move the cursor to the first (furthest left) number in the dialing window and enter the desired country code.
4) Press the **ENT** Key. 'OK' is highlighted.
5) Press the **ENT** Key. The system will begin calling the number.

When the phone is answered, the connection is established. To exit the call, select the **HANGUP** Softkey.

Text Messaging (SMS)

Messages may be sent to an email address or text message capable cellular telephone. Message length is limited to 160 characters, including the email address.

The text messaging user interface is mainly through the AUX-TEXT MESSAGING Page.

Viewing the Text Messaging Page

1) Turn the large **FMS** Knob on the MFD to select the AUX page group.
2) Turn the small **FMS** Knob to select SATELLITE PHONE.
3) If necessary, press the **SMS** Softkey to display the AUX-TEXT MESSAGING Page.

Message Symbol	Description
	Received text message that has not been opened
	Received text message that has been opened
	Saved text message, draft not sent
	System is sending text message
	Text message has been sent
	System failed to send text message
	Predefined text message

Viewing a Text Message When Received

When viewing MFD pages other than the AUX-TEXT MESSAGING Page, a pop-up alert will be displayed when a new text message is received.

Press the **VIEW** Softkey to view the message. Pressing the **IGNORE** Softkey will extinguish the pop-up window and leave the text message unopened. Pressing the **IGNR ALL** Softkey will extinguish the pop-window and ignore all future incoming text messages. Pressing the **SMS** Softkey will display the AUX-TEXT MESSAGING Page.

The pop-up alerts may be enabled or disabled through the Page Menu.

Enable/Disable Incoming Text Message Pop-Up Alerts

1) With the AUX-TEXT MESSAGING Page displayed, press the **MENU** Key on the MFD to display the Page Menu.
2) Turn either **FMS** Knob to place the cursor on 'Disable New Message Popups' or 'Enable New Message Popups'.
3) Press the **ENT** Key. The pop-up alert will not be displayed when an incoming text message is received.

Reply to a Text Message

While viewing the text message, press the **REPLY** Softkey.

Or:

a) Press the **MENU** Key to display the Page Menu.

b) Turn either **FMS** Knob to place the cursor on 'Reply To Message'.

c) Press the **ENT** Key.

Sending a Text Message

1) While viewing the AUX-TEXT MESSAGING Page, press the **NEW** Softkey.

   Or:

   a) Press the **MENU** Key to display the Page Menu.

   b) Turn either **FMS** Knob to place the cursor on 'Draft New Message'.

   c) Press the **ENT** Key.

2) The TEXT MESSAGE DRAFT Window is now displayed with the cursor in the 'TO' field. Enter the desired telephone number or email address. Entry can be accomplished through the alphanumeric keys on the PFD/MFD Control Unit, or combination of the **FMS** Knob on the controller and softkeys on the MFD. The **FMS** Knob is used to enter letters and numbers, or numbers can be entered from the MFD by pressing the **NUMBERS** Softkey. Press the **CAP LOCK** Softkey to create upper and lower case alpha characters. Special characters can be accessed by pressing the **SYMBOLS** Softkey.
3) Press the **ENT** Key. The cursor is now displayed in the 'MESSAGE' field.
4) Enter the desired message using any combination of entry methods as described in step 2.

5) Press the **ENT** Key.

6) Press the **SEND** Softkey to send the message immediately, or press the **SAVE** Softkey to save the message in Outbox for sending at a later time. Press the **CANCEL** Softkey to delete the message.

Predefined Text Messages

Time and effort can be saved in typing text messages that are used repeatedly by saving these messages as a predefined message.

Create a Predefined Text Message

1) While viewing the AUX-TEXT MESSAGING Page, press the **MENU** Key to display the Page Menu.

2) Turn either **FMS** Knob to select 'Edit Predefined Messages'.

3) Press the **ENT** Key. The PREDEFINED MESSAGES view is now displayed.

4) Press the **NEW** Softkey.

   Or:

   a) Press the **MENU** Key to display the Page Menu.

   b) Turn either **FMS** Knob to place the cursor on 'Draft New Predefined Message'.

   c) Press the **ENT** Key. The PREDEFINED SMS TEXT MESSAGE Window is now displayed.

5) The cursor is displayed in the 'TITLE' field. Enter the desired message title. Entry can be accomplished through the alphanumeric keys on the PFD/MFD Control Unit, or combination of the **FMS** Knob on the controller and softkeys on the MFD. The **FMS** Knob is used to enter letters and numbers, or numbers can be entered from the MFD by pressing the **NUMBERS** Softkey. Press the **CAP LOCK** Softkey to create upper and lower case alpha characters. Special characters can be accessed by pressing the **SYMBOLS** Softkey.

6) Press the **ENT** Key. The cursor is now displayed in the 'MESSAGE' field.

7) Enter the desired message using any combination of entry methods as described in step 5.

8) Press the **ENT** Key.

9) Press the **SAVE** Softkey. The new predefined message is now shown in the displayed list. Pressing the **CANCEL** Softkey will delete the message without saving.

10) Press the **MENU** Key to display the Page Menu.

11) Turn either **FMS** Knob to place the cursor on 'Stop Editing Predefined Message'.

12) Press the **ENT** Key.

Send a Predefined Text Message

1) While viewing the AUX-TEXT MESSAGING Page, press the **NEW** Softkey.

2) The TEXT MESSAGE DRAFT Window is now displayed with the cursor in the 'TO' field. Enter the desired telephone number or email address. Entry can be accomplished through the alphanumeric keys on the PFD/MFD Control Unit, or combination of the **FMS** Knob on the controller and softkeys on the MFD. The **FMS** Knob is used to enter letters and numbers, or numbers can be entered from the MFD by pressing the **NUMBERS** Softkey. Press the **CAP LOCK** Softkey to create upper and lower case alpha characters. Special characters can be accessed by pressing the **SYMBOLS** Softkey.

3) Press the **ENT** Key. The cursor is now displayed in the 'MESSAGE' field.

4) Press the **PREDEFD** Softkey. The PREDEFINED MESSAGE MENU Window is displayed.

6) Press the **ENT** Key. The predefined message text is inserted into the message field. If desired, the message can be edited by using the FMS Knobs.

7) Press the **ENT** Key.

8) Press the **SEND** Softkey to transmit the message.

Text Message Boxes

Received text messages reside in the Inbox as 'Read' or 'Unread' messages. The Outbox contains 'Sent' and 'Unsent' text messages. Saved messages that are meant to be sent later are stored as Drafts. Each text message box may be viewed separately, or together in any combination.

Show Inbox Messages

While viewing the AUX-TEXT MESSAGING Page, press the **ARRANGE** Softkey, then press the **INBOX** Softkey.

Or:

a) Press the **MENU** Key to display the Page Menu.

b) Turn either **FMS** Knob to place the cursor on 'Show Inbox Messages'.

c) Press the **ENT** Key. The message box selected for viewing is indicated at the bottom left of the list window.

Show Outbox Messages

While viewing the AUX-TEXT MESSAGING Page, press the **ARRANGE** Softkey, then press the **OUTBOX** Softkey.

Or:

a) Press the **MENU** Key to display the Page Menu.

b) Turn either **FMS** Knob to place the cursor on 'Show Outbox Messages'.

c) Press the **ENT** Key. The message box selected for viewing is indicated at the bottom left of the list window.

Show Draft Messages

While viewing the AUX-TEXT MESSAGING Page, press the **ARRANGE** Softkey, then press the **DRAFTS** Softkey.

Or:

a) Press the **MENU** Key to display the Page Menu.

b) Turn either **FMS** Knob to place the cursor on 'Show Draft Messages'.

c) Press the **ENT** Key. The message box selected for viewing is indicated at the bottom left of the list window.

Arranging Text Messages

The viewed messages may be listed according to the date/time the message was sent or received, the type of message (read, unread, sent, unsent, etc.), or by message address.

View Messages Sorted by Message Date/Time:

While viewing the AUX-TEXT MESSAGING Page, press the **ARRANGE** Softkey, then press the **TIME** Softkey.

Or:

a) Press the **MENU** Key to display the Page Menu.

b) Turn either **FMS** Knob to place the cursor on 'Sort By Date/Time'.

c) Press the **ENT** Key. The sorting selection is indicated at the bottom center of the list window.

View Messages Sorted by Message Type

While viewing the AUX-TEXT MESSAGING Page, press the **ARRANGE** Softkey, then press the **TYPE** Softkey.

Or:

a) Press the **MENU** Key to display the Page Menu.

b) Turn either **FMS** Knob to place the cursor on 'Sort By Type'.

c) Press the **ENT** Key. The sorting selection is indicated at the bottom center of the list window.

View Messages Sorted by Address:

While viewing the AUX-TEXT MESSAGING Page, press the **ARRANGE** Softkey, then press the **ADDRESS** Softkey.

Or:

a) Press the **MENU** Key to display the Page Menu.

b) Turn either **FMS** Knob to place the cursor on 'Sort By Address'.

c) Press the **ENT** Key. The sorting selection is indicated at the bottom center of the list window.

Viewing The Content of a Text Message

1) While viewing the AUX-TEXT MESSAGING Page, select the desired message box.

2) Press the **FMS** Knob to activate the cursor.

3) Turn either **FMS** Knob to select the desired message.

4) Press the **VIEW** Softkey.

Or:

Press the **ENT** Key.

Or:

a) Press the **MENU** Key to display the Page Menu.

b) Turn either **FMS** Knob to place the cursor on 'View Selected Message'.

c) Press the **ENT** Key.

5) To close the text message, press the **CLOSE** Softkey.

Or:

a) Press the **MENU** Key to display the Page Menu.

b) Turn either **FMS** Knob to place the cursor on 'Close Message'.

c) Press the **ENT** Key.

Mark Selected Message As Read

1) While viewing the Inbox on the AUX-TEXT MESSAGING Page, press the **FMS** Knob to activate the cursor.

2) Turn either **FMS** Knob to select the desired message.

3) Press the **MRK READ** Softkey.

Or:

a) Press the **MENU** Key to display the Page Menu.

b) Turn either **FMS** Knob to place the cursor on 'Mark Selected Message As Read'.

c) Press the **ENT** Key.

The message symbol now indicates the message has been opened.

Mark All Messages As Read

1) While viewing the Inbox on the AUX-TEXT MESSAGING Page, press the **MENU** Key to display the Page Menu.

2) Turn either **FMS** Knob to place the cursor on 'Mark All New Messages As Read'.

3) Press the **ENT** Key. A confirmation window is displayed.

4) With cursor highlighting 'YES', press the **ENT** Key. The message symbols now indicate all the message have been opened.

Delete a Message

1) While viewing the Inbox on the AUX-TEXT MESSAGING Page, press the **FMS** Knob to activate the cursor.
2) Turn either **FMS** Knob to select the desired message.
3) Press the **DELETE** Softkey.

   Or:

   a) Press the **MENU** Key to display the Page Menu.

   b) Turn either **FMS** Knob to place the cursor on 'Delete Selected Message'.

   c) Press the **ENT** Key.

ELECTRONIC CHECKLISTS

The system accesses the checklists from an SD card inserted into the card slot. If the SD card contains an invalid checklist file or no checklist, the Power-up Page messages display 'Checklist File: Invalid' or 'Checklist File: N/A' (not available) and the **CHKLIST** Softkey is not available.

The following colors are used for checklist items:

- Light Blue - Items not selected or checked
- White - Item is selected
- Green - Item has been checked
- Gray - General notes
- Yellow - Caution notes
- Red - Warning notes

Accessing and Navigating Checklists

1) From any page on the MFD, select the **CHKLIST** Softkey or turn the large **FMS** Knob to select the Checklist Page.
2) Turn the large **FMS** Knob to select the 'GROUP' field.
3) Turn the small **FMS** Knob to select the desired procedure and press the **ENT** Key.
4) Turn the large **FMS** Knob to select the 'CHECKLIST' field.
5) Turn the small **FMS** Knob to select the desired checklist and press the **ENT** Key. The selected checklist item is indicated with white text surrounded by a white box.

6) Press the **ENT** Key or select the **CHECK** Softkey to check the selected checklist item. The line item turns green and a checkmark is placed in the associated box. The next line item is automatically selected for checking.

   Either **FMS** Knob can be used to scroll through the checklist and select the desired checklist item.

   Press the **CLR** Key or select the **UNCHECK** Softkey to remove a check mark from an item.

7) When all checklist items have been checked, '*Checklist Finished*' is displayed in green text at the bottom left of the checklist window and 'GO TO NEXT CHECKLIST?' is highlighted. If 'GO TO NEXT CHECKLIST?' is selected prior to checking all the checklist items, '*CHECKLIST NOT FINISHED*' will be displayed in yellow text.

8) Press the **ENT** Key. If 'GO TO NEXT CHECKLIST?' is displayed when pressing the **ENT** Key, the next checklist in the group will be displayed. If 'EXIT CHECKLISTS?' is displayed when pressing the **ENT** Key, the system will exit the Checklist Page.

9) Select the **EXIT** Softkey to exit the Checklist Page and return to the page last viewed. When returning to the Checklist Page after selecting the **EXIT** Softkey, the system will return to the last select checklist item.

Immediately Accessing Emergency Procedures

1) From any page on the MFD, select the **CHKLIST** Softkey or turn the large **FMS** Knob to select the Checklist Page.

2) Select the **EMERGCY** Softkey.

3) Turn the **FMS** Knob to select the desired emergency checklist and press the **ENT** Key.

4) Press the **ENT** Key or select the **CHECK** Softkey to check the selected emergency checklist item. The line item turns green and a checkmark is placed in the box next to it. The next line item is automatically highlighted for checking.

   Either **FMS** Knob can be used to scroll through the checklist and select the desired checklist item.

   Press the **CLR** Key or select the **UNCHECK** Softkey to remove a check mark from an item.

5) When all checklist items have been checked, '*Checklist Finished*' is displayed in green text at the bottom left of the checklist window and 'GO TO NEXT CHECKLIST?' is highlighted. If 'GO TO NEXT CHECKLIST?' is selected prior to checking all the checklist items, '*CHECKLIST NOT FINISHED*' will be displayed in yellow text.

6) Press the **ENT** Key to advance to the next checklist.

7) Select the **RETURN** Softkey to return to the previous checklist.

8) Select the **EXIT** Softkey to exit the Checklist Page and return to the page last viewed.

ABNORMAL OPERATION

REVERSIONARY MODE

If the system detects an MFD failure, reversionary mode is entered automatically. Reversionary mode must be entered manually in the case of a PFD failure. In reversionary mode, critical flight instrumentation is combined with engine instrumentation on the remaining display.

Manual activation of reversionary display mode is accomplished by pressing the appropriate **DISPLAY BACKUP** Button on the instrument panel.

- **PFD1** – By pressing the **DISPLAY BACKUP** Button on the left.
- **MFD** – By pressing the **DISPLAY BACKUP** Button on the left or the right.
- **PFD2** – By pressing the **DISPLAY BACKUP** Button on the right.

***NOTE:** The Piper PA-46 Mirage/Matrix Pilot's Operating Handbook (POH) always takes precedence over the information found in this section.*

ABNORMAL COM OPERATION

When a COM tuning failure is detected by the system, the emergency frequency (121.500 MHz) is automatically loaded into the active frequency field of the COM radio for which the tuning failure was detected. In the event of a failure of both PFDs, the emergency frequency (121.500 MHz) automatically becomes the active frequency on both COM radios.

AUDIO PANEL FAIL-SAFE OPERATION

If there is a failure of the Audio Panel, a fail-safe circuit connects the pilot's headset and microphone directly to the COM1. Audio is not available on the speaker during fail-safe operation. Fail-safe operation may be tested by turning the Audio Panel off.

In addition, the following functions are no longer available; NAV/ILS audio, speaker, cockpit/cockpit-passengers intercom, aural warning alerts on headset, entertainment inputs, and digital recording radio.

HAZARD DISPLAYS WITH LOSS OF GPS POSITION

If GPS position is lost, or becomes invalid, selected hazards being displayed on the Navigation Map Page are removed until GPS position is again established.

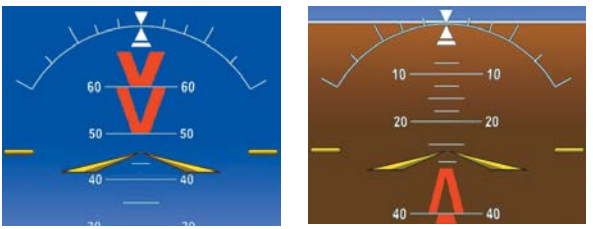
Loss of Hazard Functions with Loss of GPS Position

UNUSUAL ATTITUDES

The PFD 'declutters' when the aircraft enters an unusual attitude. Only the primary functions are displayed in these situations.

The following information is removed from the PFD (and corresponding softkeys are disabled) when the aircraft experiences unusual attitudes:

- Traffic Annunciations
- AFCS Annunciations
- Flight director Command Bars
- Inset Map
- Temperatures
- DME Information Window
- Wind Data
- Selected Heading Box
- Selected Course Box
- Transponder Status Box
- System Time
- PFD Setup Menu
- Windows displayed in the lower right corner of the PFD:
  - Timer/References
  - Nearest Airports
  - Flight Plan
  - Messages
  - Procedures
- Barometric Minimum Descent Altitude Box
- Glideslope, Glidepath, and Vertical Deviation Indicators
- Altimeter Barometric Setting
- Selected Altitude
- VNV Target Altitude



Extreme Pitch Indication

DEAD RECKONING

While in Enroute or Oceanic phase of flight, if the G1000 detects an invalid GPS solution or is unable to calculate a GPS position, the system automatically reverts to Dead Reckoning (DR) Mode. In DR Mode, the G1000 uses its last-known position combined with continuously updated airspeed and heading data (when available) to calculate and display the aircraft's current estimated position.

NOTE: *Dead Reckoning Mode only functions in Enroute (ENR) or Oceanic (OCN) phase of flight. In all other phases, an invalid GPS solution produces a "NO GPS POSITION" annunciation on the map and the G1000 stops navigating in GPS Mode.*

DR Mode is indicated on the G1000 by the appearance of the letters 'DR' superimposed in yellow over the 'own aircraft' symbol as shown in the following figure. In addition, 'DR' is prominently displayed, also in yellow, on the HSI slightly above and to the right of the aircraft symbol on the CDI as shown in the following figure. The CDI deviation bar is displayed in yellow, but will be removed from the display after 20 minutes. Lastly, but at the same time, a 'GPS NAV LOST' alert message appears on the PFD.

Normal navigation using GPS/SBAS source data resumes automatically once a valid GPS solution is restored.

It is important to note that estimated navigation data supplied by the G1000 in DR Mode may become increasingly unreliable and must not be used as a sole means of navigation. If, while in DR Mode, airspeed and/or heading data is also lost or not available, the DR function may not be capable of estimating your position and, consequently, the system may display a path that is different than the actual movement of the aircraft. Estimated position information displayed by the G1000 through DR while there is no heading and/or airspeed data available should not be used for navigation.

DR Mode is inherently less accurate than the standard GPS/SBAS Mode due to the lack of satellite measurements needed to determine a position. Changes in wind speed and/or wind direction compounds the relative inaccuracy of DR Mode. Because of this degraded accuracy, the crew must maintain position awareness using other navigation equipment until GPS-derived position data is restored.

CDI 'DR' Indication on PFD

Symbolic Aircraft (Map pages and Inset Map)

Dead Reckoning Indications

As a result of operating in DR Mode, all GPS-derived data is computed based upon an estimated position and is displayed as yellow text on the display to denote degraded navigation source information. This data includes the following:

- Navigation Status Box fields except Active Leg, TAS, and DTK
- GPS Bearing Pointer
- Wind data and pointers in the Wind Data Box on the PFD
- Current Track Indicator
- All Bearing Pointer Distances
- Active Flight Plan distances, bearings, and ETE values

Also, while the G1000 is in DR Mode, the autopilot will couple to GPS for up to 20 minutes. Terrain Proximity, TERRAIN-SVS, and TAWS are also disabled. Additionally, the accuracy of all nearest information (airports, airspaces, and waypoints) is questionable. Finally, airspace alerts continue to function, but with degraded accuracy.

ANNUNCIATIONS & ALERTS

G1000 SYSTEM ANNUNCIATIONS

When an LRU or an LRU function fails, a large red "X" is typically displayed on windows associated with the failed data. Refer to the AFM for additional information regarding pilot responses to these annunciations

System Annunciation	Comment
	Attitude and Heading Reference System is aligning.
	Display system is not receiving attitude information from the AHRS.
	GPS information is either not present or is invalid for navigation use. Note that AHRS utilizes GPS inputs during normal operation. AHRS operation may be degraded if GPS signals are not present (see AFM/POH).
	Display system is not receiving valid heading input from AHRS.
	Display system is not receiving valid transponder information.

G1000 SYSTEM ANNUNCIATIONS (CONT.)

System Annunciation	Comment
	Display system is not receiving airspeed input from air data computer.
	Display system is not receiving altitude input from the air data computer.
	Display system is not receiving vertical speed input from the air data computer.
Other Various Red X Indications	A red 'X' through any other display field (such as engine instrumentation display) indicates that the field is not receiving valid data.

CAS MESSAGES

If two alert levels of the same message are active simultaneously (e.g., DOOR AJAR warning and DOOR AJAR advisory) only the higher alert level is displayed.

If a GEA or GIA fails, all CAS messages depending on sensors associated with that LRU are automatically inhibited. Inhibits cannot be activated by invalid sensor data.

Warnings Messages

A repeating chime is heard until the warning is acknowledged with the Master Warning button.

Warning Messages	Description
ALTR 1 FAIL	#1 alternator has failed
ALTR 2 FAIL	#2 alternator has failed
CABIN ALT 10000	Cabin altitude above 10,000 feet
DOOR AJAR	Door is not completely closed
FUEL PRESS LOW	Fuel pressure is low
L FUEL QTY LOW	Fuel quantity ≤ to 5 gallons in left tank
R FUEL QTY LOW	Fuel quantity ≤ to 5 gallons in right tank
SPEEDBRAKES EXTD	Speedbrakes are extended
WNDSHLD OVRTEMP	Windshield heater over-temperature or controller malfunction

Caution Messages

A single chime is heard when a caution message is displayed.

Caution Messages	Description
BOOST PUMP FAIL	Fuel boost pump has failed
FLAP FAIL	Flap overcurrent
FUEL IMBALANCE	Fuel imbalance is over 10 gallons
HYDR PUMP ON	Hydraulic pump is on
OXYGEN GEN ON*	Oxygen generator has been turned on
L PITOT HT FAIL	Left pitot heat has failed. Displayed as warning if both left and right fail.
R PITOT HT FAIL	Right pitot heat has failed. Displayed as warning if both right and left fail.
PITOT HEAT OFF	Pitot heat is off (no chime)
PROP HEAT FAIL	Propeller heat failure
SPEEDBRAKES EXTD	Speedbrakes are extended
STALL WARN FAIL	Failure detected in stall warning system
STARTER ENGAGED	Starter engaged for more than 10 sec.
SURF DE-ICE FAIL	Surface de-ice fail

* Mirage only

Advisory Messages

Advisory Messages	Description
DOOR AJAR	Door is not completely closed
EMERG FUEL OFF	
EMERG FUEL ON	
FUEL IMBALANCE	Fuel imbalance is over 10 gallons
L FUEL QTY LOW	Fuel quantity ≤ to 5 gallons in left tank
R FUEL QTY LOW	Fuel quantity ≤ to 5 gallons in right tank
SPEEDBRAKES EXTD	Speedbrakes are extended
SURF DE-ICE ON	Surface de-ice on
VACUUM 1 FAIL	Vacuum 1 system has failed
VACUUM 2 FAIL	Vacuum 2 system has failed

SYSTEM MESSAGE ALERTS

Alerts Window Message	Audio Alert
PFD1 FAN FAIL – The cooling fan for PFD1 is inoperative.	None
PFD2 FAN FAIL – The cooling fan for PFD2 is inoperative.	
MFD FAN FAIL – The cooling fan for the MFD is inoperative.	
AV FAN FAIL – The cooling fan for remote avionics has failed.	

COMPARATOR ANNUNCIATIONS

Note that operating the system in the vicinity of metal buildings or other metal structures can cause sensor differences that may result in nuisance miscompare annunciations during start up, shut down, or while taxiing.

Comparator Window Text	Condition
ALT MISCOMP	Difference in altitude sensors is ≥ 200 ft.
IAS MISCOMP	If both airspeed sensors detect < 35 knots, this is inhibited.
	If either airspeed sensor detects ≥ 35 knots, and the difference in sensors is > 15 kts.
	If either airspeed sensor detects ≥ 80 knots, and the difference in sensors is > 10 kts.
HDG MISCOMP	Difference in heading sensors is > 10 degrees.
PIT MISCOMP	Difference in pitch sensors is > 5 degrees.
ROL MISCOMP	Difference in roll sensors is > 6 degrees.

Comparator Window Text	Condition
ALT NO COMP	No data from one or both altitude sensors.
IAS NO COMP	No data from one or both airspeed sensors.
HDG NO COMP	No data from one or both heading sensors.
PIT NO COMP	No data from one or both pitch sensors.
ROL NO COMP	No data from one or both roll sensors..

REVERSIONARY SENSOR ANNUNCIATIONS

Reversionary Sensor Window Text	Condition
BOTH ON ADC1	Both PFDs are displaying data from the number one Air Data Computer.
BOTH ON ADC2	Both PFDs are displaying data from the number two Air Data Computer.
BOTH ON AHRS1	Both PFDs are displaying data from the number one Attitude & Heading Reference System.
BOTH ON AHRS2	Both PFDs are displaying data from the number two Attitude & Heading Reference System.
BOTH ON GPS1	Both PFDs are displaying data from the number one GPS receiver.
BOTH ON GPS2	Both PFDs are displaying data from the number two GPS receiver.
USING ADC1	PFD2 is displaying data from the #1 Air Data Computer.
USING ADC2	PFD1 is displaying data from the #2 Air Data Computer.
USING AHRS1	PFD2 is displaying data from the #1 AHRS.
USING AHRS2	PFD1 is displaying data from the #2 AHRS.
USING GPS1	PFD2 is displaying data from the #1 GPS.
USING GPS2	PFD1 is displaying data from the #2 GPS.

AFCS ALERTS

Condition	Annunciation	Description
Pitch Failure		Pitch axis control failure.
Roll Failure		Roll axis control failure.
Pitch Trim Axis Control Failure		If annunciated when AP is engaged, a failure has occurred in the pitch trim system.
Yaw Damper Failure		YD control failure; AP also inoperative
System Failure		AP and MET are unavailable. FD may still be available.
Yaw Damper Failure		YD control failure.
Elevator Mistrim Up		A condition has developed causing the pitch servo to provide a sustained force in the nose up direction.
Elevator Mistrim Down		A condition has developed causing the pitch servo to provide a sustained force in the nose down direction.
Aileron Mistrim Left		A condition has developed causing the roll servo to provide a sustained left force.
Aileron Mistrim Right		A condition has developed causing the roll servo to provide a sustained right force.
Rudder Mistrim Left		A condition has developed causing the yaw servo to provide a sustained force.
Rudder Mistrim Right		A condition has developed causing the yaw servo to provide a sustained force.
Preflight Test		Performing preflight system test. Upon completion of the test, the aural alert will be heard.
		Preflight system test has failed.

TERRAIN-SVS ALERTS

Alert Type	PFD/MFD TERRAIN-SVS Page Annunciation	MFD Pop-Up Alert	Aural Message
Reduced Required Terrain Clearance Warning (RTC)	TERRAIN	WARNING TERRAIN	"Warning; Terrain, Terrain"
Imminent Terrain Impact Warning (ITI)	TERRAIN	WARNING TERRAIN	"Warning; Terrain, Terrain"
Reduced Required Obstacle Clearance Warning (ROC)	TERRAIN	WARNING OBSTACLE	"Warning; Obstacle, Obstacle"
Imminent Obstacle Impact Warning (IOI)	TERRAIN	WARNING OBSTACLE	"Warning; Obstacle, Obstacle"
Reduced Required Terrain Clearance Caution (RTC)	TERRAIN	CAUTION TERRAIN	"Caution; Terrain, Terrain"
Imminent Terrain Impact Caution (ITI)	TERRAIN	CAUTION TERRAIN	"Caution; Terrain, Terrain"
Reduced Required Obstacle Clearance Caution (ROC)	TERRAIN	CAUTION OBSTACLE	"Caution; Obstacle, Obstacle"
Imminent Obstacle Impact Caution (IOI)	TERRAIN	CAUTION OBSTACLE	"Caution; Obstacle, Obstacle"

Terrain-SVS System Status Annunciations

Alert Type	PFD/MFD Alert Annunciation	TERRAIN-SVS Page Annunciation	Aural Message
System Test in Progress	TER TEST	TERRAIN TEST	None
System Test Pass	None	None	"Terrain System Test OK"
Terrain System Test Fail	TER FAIL	TERRAIN FAIL	"Terrain System Failure"
Terrain or Obstacle database unavailable or invalid, invalid software configuration, system audio fault	TER FAIL	TERRAIN FAIL	"Terrain System Failure"
MFD Terrain or Obstacle database unavailable or invalid. System operating with PFD Terrain or Obstacle databases	None	TERRAIN DATABASE FAILURE	None
No GPS position	TER N/A	NO GPS POSITION	"Terrain System Not Available"
Excessively degraded GPS signal or out of database coverage area	TER N/A	None	"Terrain System Not Available"
Sufficient GPS signal received after loss or database coverage area entered	None	None	"Terrain System Available"

TAWS-B ALERTS

Alert Type	PFD/MFD TAWS-B Page Annunciation	MFD Pop-Up Alert	Aural Message
Excessive Descent Rate Warning (EDR)	PULL UP	PULL-UP	"Pull Up"
Reduced Required Terrain Clearance Warning (RTC)	PULL UP	TERRAIN - PULL-UP	"Terrain, Terrain; Pull Up, Pull Up"
Imminent Terrain Impact Warning (ITI)	PULL UP	TERRAIN - PULL-UP	"Terrain, Terrain; Pull Up, Pull Up"
Reduced Required Obstacle Clearance Warning (ROC)	PULL UP	OBSTACLE - PULL-UP	"Obstacle, Obstacle; Pull Up, Pull Up"
Imminent Obstacle Impact Warning (IOI)	PULL UP	OBSTACLE - PULL-UP	""Obstacle, Obstacle; Pull Up, Pull Up"
Reduced Required Terrain Clearance Caution (RTC)	TERRAIN	CAUTION - TERRAIN	"Caution, Terrain; Caution, Terrain"
Imminent Terrain Impact Caution (ITI)	TERRAIN	CAUTION - TERRAIN	"Caution, Terrain; Caution, Terrain"
Reduced Required Obstacle Clearance Caution (ROC)	TERRAIN	CAUTION - OBSTACLE	"Caution, Obstacle; Caution, Obstacle"
Imminent Obstacle Impact Caution (IOI)	TERRAIN	CAUTION - OBSTACLE	"Caution, Obstacle; Caution, Obstacle"
Premature Descent Alert Caution (PDA)	TERRAIN	TOO LOW - TERRAIN	"Too Low, Terrain"
Altitude Callout "500"	None	None	"Five-Hundred"
Excessive Descent Rate Caution (EDR)	TERRAIN	SINK RATE	"Sink Rate"
Negative Climb Rate Caution (NCR)	TERRAIN	DON'T SINK	"Don't Sink"

TAWS-B System Status Annunciations

Alert Type	PFD/MFD Alert Annunciation	TAWS-B Page Annunciation	Aural Message
System Test in Progress	TAWS TEST	TAWS TEST	None
System Test Pass	None	None	"TAWS System Test OK"
TAWS-B System Test Fail	TAWS FAIL	TAWS FAIL	"TAWS System Failure"
Terrain or Obstacle database unavailable or invalid, invalid software configuration, system audio fault	TAWS FAIL	TAWS FAIL	"TAWS System Failure"
MFD Terrain or Obstacle database unavailable or invalid. System operating with PFD Terrain or Obstacle databases	None	TERRAIN DATABASE FAILURE	None
No GPS position	TAWS N/A	NO GPS POSITION	"TAWS Not Available"
Excessively degraded GPS signal or out of database coverage area	TAWS N/A	None	"TAWS Not Available"
Sufficient GPS signal received after loss or database coverage area entered	None	None	"TAWS Available"

OTHER G1000 AURAL ALERTS

Message	Priority	Description
"Minimums, minimums"	Warning	The aircraft has descended below the preset barometric minimum descent altitude.
"Timer Expired"	Advisory	Countdown timer on the PFD has reached zero
"Vertical track"	Advisory	The aircraft is one minute from Top of Descent. Issued only when vertical navigation is enabled.
"TIS not available"	Advisory	The aircraft is outside the Traffic Information Service (TIS) coverage area.

FLIGHT PLAN IMPORT/EXPORT MESSAGES

In some circumstances, some messages may appear in conjunction with others.

Flight Plan Import/Export Results	Description
'Flight plan successfully imported.'	A flight plan file stored on the SD card was successfully imported as a stored flight plan.
'File contained user waypoints only. User waypoints imported successfully. No stored flight plan data was modified.'	The file stored on the SD card did not contain a flight plan, only user waypoints. These waypoints have been saved to the system user waypoints. No flight plans stored in the system have been modified.
'No flight plan files found to import.'	The SD card contains no flight plan data.
'Flight plan import failed.'	Flight plan data was not successfully imported from the SD card.
'Flight plan partially imported.'	Some flight plan waypoints were successfully imported from the SD card, however others had errors and were not imported. A partial stored flight plan now exists in the system.
'File contained user waypoints only.'	The file stored on the SD card did not contain a flight plan, only user waypoints. One or more of these waypoints did not import successfully.
'Too many points. Flight plan truncated.'	The flight plan on the SD card contains more waypoints than the system can support. The flight plan was imported with as many waypoints as possible.
'Some waypoints not loaded. Waypoints locked.'	The flight plan on the SD card contains one or more waypoints that the system cannot find in the navigation database. The flight plan has been imported, but must be edited within the system before it can be activated for use.

Flight Plan Import/Export Results	Description
'User waypoint database full. Not all loaded.'	The flight plan file on the SD card contains user waypoints. The quantity of stored user waypoints has exceeded system capacity, therefore not all the user waypoints on the SD card have been imported. Any flight plan user waypoints that were not imported are locked in the flight plan. The flight plan must be edited within the system before it can be activated for use.
'One or more user waypoints renamed.'	One or more imported user waypoints were renamed when imported due to naming conflicts with waypoints already existing in the system.
'Flight plan successfully exported.'	The stored flight plan was successfully exported to the SD card.
'Flight plan export failed.'	The stored flight plan was not successfully exported to the SD card. The SD card may not have sufficient available memory or the card may have been removed prematurely.

MFD & PFD MESSAGE ADVISORIES

Message	Comments
DATA LOST – Pilot stored data was lost. Recheck settings.	The pilot profile data was lost. System reverts to default pilot profile and settings. The pilot may reconfigure the MFD & PFDs with preferred settings, if desired.
XTALK ERROR – A flight display crosstalk error has occurred.	The MFD and PFDs are not communicating with each other. The system should be serviced.
PFD1 SERVICE – PFD1 needs service. Return unit for repair.	The PFD and/or MFD self-test has detected a problem. The system should be serviced.
PFD2 SERVICE – PFD2 needs service. Return unit for repair.	
MFD1 SERVICE – MFD1 needs service. Return unit for repair.	
MANIFEST – PFD1 software mismatch, communication halted.	The PFD and/or MFD has incorrect software installed. The system should be serviced.
MANIFEST – PFD2 software mismatch, communication halted.	
MANIFEST – MFD1 software mismatch, communication halted.	

MFD & PFD MESSAGE ADVISORIES (CONT.)

Message	Comments
PFD1 CONFIG – PFD1 config error. Config service req'd.	The PFD configuration settings do not match backup configuration memory. The system should be serviced.
PFD2 CONFIG – PFD2 config error. Config service req'd.	
MFD1 CONFIG – MFD1 config error. Config service req'd.	The MFD configuration settings do not match backup configuration memory. The system should be serviced.
SW MISMATCH – GDU software version mismatch. Xtalk is off.	The MFD and PFDs have different software versions installed. The system should be serviced.
PFD1 COOLING – PFD1 has poor cooling. Reducing power usage.	The PFD and/or MFD is overheating and is reducing power consumption by dimming the display. If problem persists, the system should be serviced.
PFD2 COOLING – PFD2 has poor cooling. Reducing power usage.	
MFD1 COOLING – MFD1 has poor cooling. Reducing power usage.	
PFD1 KEYSTK – PFD1 [key name] Key is stuck.	A key is stuck on the PFD and/or MFD bezel. Attempt to free the stuck key by pressing it several times. The system should be serviced if the problem persists.
PFD2 KEYSTK – PFD2 [key name] Key is stuck.	
MFD1 KEYSTK – MFD [key name] Key is stuck.	
CNFG MODULE – PFD1 configuration module is inoperative.	The PFD1 configuration module backup memory has failed. The system should be serviced.
PFD1 VOLTAGE – PFD1 has low voltage. Reducing power usage	The PFD1 voltage is low. The system should be serviced.
PFD2 VOLTAGE – PFD2 has low voltage. Reducing power usage	The PFD2 voltage is low. The system should be serviced.
MFD1 VOLTAGE – MFD1 has low voltage. Reducing power usage	The MFD voltage is low. The system should be serviced.

DATABASE MESSAGE ADVISORIES

Message	Comments
MFD1 DB ERR – MFD1 navigation database error exists.	The MFD and/or PFD detected a failure in the navigation database. Attempt to reload the navigation database. If problem persists, the system should be serviced.
PFD1 DB ERR – PFD1 navigation database error exists.	
PFD2 DB ERR – PFD2 navigation database error exists.	
MFD1 DB ERR – MFD1 basemap database error exists.	The MFD and/or PFD detected a failure in the basemap database.
PFD1 DB ERR – PFD1 basemap database error exists.	
PFD2 DB ERR – PFD2 basemap database error exists.	
MFD1 DB ERR – MFD1 terrain database error exists.	The MFD and/or PFD detected a failure in the terrain database. Ensure that the terrain card is properly inserted in display. Replace terrain card. If problem persists, the system should be serviced.
PFD1 DB ERR – PFD1 terrain database error exists.	
PFD2 DB ERR – PFD2 terrain database error exists.	
MFD1 DB ERR – MFD1 terrain database missing.	The terrain database is present on another LRU, but is missing on the specified LRU.
PFD1 DB ERR – PFD1 terrain database missing.	
PFD2 DB ERR – PFD2 terrain database missing.	
MFD1 DB ERR – MFD1 obstacle database error exists.	The MFD and/or PFD detected a failure in the obstacle database. Ensure that the data card is properly inserted. Replace data card. If problem persists, the system should be serviced.
PFD1 DB ERR – PFD1 obstacle database error exists.	
PFD2 DB ERR – PFD2 obstacle database error exists.	

DATABASE MESSAGE ADVISORIES (CONT.)

Message	Comments
MFD1 DB ERR – MFD1 obstacle database missing.	The obstacle database is present on another LRU, but is missing on the specified LRU.
PFD1 DB ERR – PFD1 obstacle database missing.	
PFD2 DB ERR – PFD2 obstacle database missing.	
MFD1 DB ERR – MFD1 airport terrain database error exists.	The MFD and/or PFD detected a failure in the airport terrain database. Ensure that the data card is properly inserted. Replace data card. If problem persists, the system should be serviced.
PFD1 DB ERR – PFD1 airport terrain database error exists.	
PFD2 DB ERR – PFD2 airport terrain database error exists.	
MFD1 DB ERR – MFD1 airport terrain database missing.	The airport terrain database is present on another LRU, but is missing on the specified LRU.
PFD1 DB ERR – PFD1 airport terrain database missing.	
PFD2 DB ERR – PFD2 airport terrain database missing.	
MFD1 DB ERR – MFD1 Safe Taxi database error exists.	The MFD and/or PFD detected a failure in the Safe Taxi database. Ensure that the data card is properly inserted. Replace data card. If problem persists, the system should be serviced.
PFD1 DB ERR – PFD1 Safe Taxi database error exists.	
PFD2 DB ERR – PFD2 Safe Taxi database error exists.	
MFD1 DB ERR – MFD1 Chartview database error exists.	The MFD detected a failure in the ChartView database (if equipped). Ensure that the data card is properly inserted. Replace data card. If problem persists, the system should be serviced.
MFD1 DB ERR – MFD1 FliteCharts database error exists.	The MFD detected a failure in the FliteCharts database (if equipped). Ensure that the data card is properly inserted. Replace data card. If problem persists, the system should be serviced.

DATABASE MESSAGE ADVISORIES (CONT.)

Message	Comments
MFD1 DB ERR – MFD1 Airport Directory database error exists.	The MFD detected a failure in the Airport Directory database. Ensure that the data card is properly inserted. Replace data card. If problem persists, the system should be serviced.
DB MISMATCH – Navigation database mismatch. Xtalk is off.	The PFDs and MFD have different navigation database versions or regions installed. Crossfill is off. Check the AUX-SYSTEM STATUS Page to determine versions or regions. Also, check the AUX-SYSTEM STATUS Page for a database synchronization function not completed. After synchronization is complete, power must be turned off, then on.
DB MISMATCH – Standby Navigation database mismatch.	The PFDs and MFD have different standby navigation database versions or regions installed. Check the AUX-SYSTEM STATUS Page to determine versions or regions. Also, check the AUX-SYSTEM STATUS Page for a database synchronization function not completed. After synchronization is complete, power must be turned off, then on.
DB MISMATCH – Terrain database mismatch.	The PFDs and MFD have different terrain database versions or regions installed. Check the AUX-SYSTEM STATUS Page to determine versions or regions. Also, check the AUX-SYSTEM STATUS Page for a database synchronization function not completed. After synchronization is complete, power must be turned off, then on.
DB MISMATCH – Obstacle database mismatch.	The PFDs and MFD have different obstacle database versions or regions installed. Check the AUX-SYSTEM STATUS Page to determine versions or regions. Also, check the AUX-SYSTEM STATUS Page for a database synchronization function not completed. After synchronization is complete, power must be turned off, then on.

DATABASE MESSAGE ADVISORIES (CONT.)

Message	Comments
DB MISMATCH – Airport Terrain database mismatch.	The PFDs and MFD have different airport terrain database versions or regions installed. Check the AUX-SYSTEM STATUS Page to determine versions or regions. Also, check the AUX-SYSTEM STATUS Page for a database synchronization function not completed. After synchronization is complete, power must be turned off, then on.
NAV DB UPDATED – Active navigation database updated.	System has updated the active navigation database from the standby navigation database.
TERRAIN DSP – [PFD1, PFD2 or MFD1] Terrain awareness display unavailable.	One of the terrain, airport terrain, or obstacle databases required for TAWS in the specified PFD or MFD is missing or invalid.

GMA 347 MESSAGE ADVISORIES

Message	Comments
GMA1 FAIL – GMA1 is inoperative.	The audio panel self-test has detected a failure. The audio panel is unavailable. The system should be serviced.
GMA1 CONFIG – GMA1 config error. Config service req'd.	The audio panel configuration settings do not match backup configuration memory. The system should be serviced.
MANIFEST – GMA1 software mismatch, communication halted.	The audio panel has incorrect software installed. The system should be serviced.
GMA1 SERVICE – GMA1 needs service. Return unit for repair.	The audio panel self-test has detected a problem in the unit. Certain audio functions may still be available, and the audio panel may still be usable. The system should be serviced when possible.

GIA 63W MESSAGE ADVISORIES

Message	Comments
GIA1 CONFIG – GIA1 config error. Config service req'd.	The GIA1 and/or GIA2 configuration settings do not match backup configuration memory. The system should be serviced.
GIA2 CONFIG – GIA2 config error. Config service req'd.	
GIA1 CONFIG – GIA1 audio config error. Config service req'd.	The GIA1 and/or GIA2 have an error in the audio configuration. The system should be serviced.
GIA2 CONFIG – GIA2 audio config error. Config service req'd.	
GIA1 COOLING – GIA1 temperature too low.	The GIA1 and/or GIA2 temperature is too low to operate correctly. Allow units to warm up to operating temperature.
GIA2 COOLING – GIA2 temperature too low.	
GIA1 COOLING – GIA1 over temperature.	The GIA1 and/or GIA2 temperature is too high. If problem persists, the system should be serviced.
GIA2 COOLING – GIA2 over temperature.	
GIA1 SERVICE – GIA1 needs service. Return the unit for repair.	The GIA1 and/or GIA2 self-test has detected a problem in the unit. The system should be serviced.
GIA2 SERVICE – GIA2 needs service. Return the unit for repair.	
HW MISMATCH – GIA hardware mismatch. GIA1 communication halted.	A GIA mismatch has been detected, where only one is SBAS capable.
HW MISMATCH – GIA hardware mismatch. GIA2 communication halted.	
MANIFEST – GIA1 software mismatch, communication halted.	The GIA1 and/or GIA 2 has incorrect software installed. The system should be serviced.
MANIFEST – GIA2 software mismatch, communication halted.	

GIA 63W MESSAGE ADVISORIES (CONT.)

Message	Comments
MANIFEST – GFC software mismatch, communication halted.	Incorrect servo software is installed, or gain settings are incorrect.
COM1 TEMP – COM1 over temp. Reducing transmitter power.	The system has detected an over temperature condition in COM1 and/or COM2. The transmitter is operating at reduced power. If the problem persists, the system should be serviced.
COM2 TEMP – COM2 over temp. Reducing transmitter power.	
COM1 SERVICE – COM1 needs service. Return unit for repair.	The system has detected a failure in COM1 and/or COM2. COM1 and/or COM2 may still be usable. The system should be serviced when possible.
COM2 SERVICE – COM2 needs service. Return unit for repair.	
COM1 PTT – COM1 push-to-talk key is stuck.	The COM1 and/or COM2 external push-to-talk switch is stuck in the enable (or "pressed") position. Press the PTT switch again to cycle its operation. If the problem persists, the system should be serviced.
COM2 PTT – COM2 push-to-talk key is stuck.	
COM1 RMT XFR – COM1 remote transfer key is stuck.	The COM1 and/or COM2 transfer switch is stuck in the enabled (or "pressed") position. Press the transfer switch again to cycle its operation. If the problem persists, the system should be serviced.
COM2 RMT XFR – COM2 remote transfer key is stuck.	
COM1 CONFIG – COM1 config error. Config service req'd.	COM1 and/or COM2 configuration settings do not match backup configuration memory. The G1000 system should be serviced.
COM2 CONFIG– COM2 config error. Config service req'd.	
MANIFEST– COM1 software mismatch, communication halted.	COM1 and/or COM2 software mismatch. The G1000 system should be serviced.
MANIFEST– COM2 software mismatch, communication halted.	
LOI – GPS integrity lost. Crosscheck with other NAVS.	GPS integrity is insufficient for the current phase of flight.

GIA 63W MESSAGE ADVISORIES (CONT.)

Message	Comments
GPS NAV LOST – Loss of GPS navigation. Insufficient satellites.	Loss of GPS navigation due to insufficient satellites.
GPS NAV LOST – Loss of GPS navigation. Position error.	Loss of GPS navigation due to position error.
GPS NAV LOST – Loss of GPS navigation. GPS fail.	Loss of GPS navigation due to GPS failure.
ABORT APR – Loss of GPS navigation. Abort approach.	Abort approach due to loss of GPS navigation.
APR DWNGRADE – Approach downgraded.	Vertical guidance generated by SBAS is unavailable, use LNAV only minimums.
TRUE APR – True north approach. Change HDG reference to TRUE.	Displayed after passing the first waypoint of a true north approach when the nav angle is set to 'AUTO'.
GPS1 SERVICE – GPS1 needs service. Return unit for repair.	A failure has been detected in the GPS1 and/or GPS2 receiver. The receiver may still be available. The system should be serviced.
GPS2 SERVICE – GPS2 needs service. Return unit for repair.	
NAV1 SERVICE – NAV1 needs service. Return unit for repair.	A failure has been detected in the NAV1 and/or NAV2 receiver. The receiver may still be available. The system should be serviced.
NAV2 SERVICE – NAV2 needs service. Return unit for repair.	
NAV1 RMT XFR – NAV1 remote transfer key is stuck.	The remote NAV1 and/or NAV2 transfer switch is stuck in the enabled (or "pressed") state. Press the transfer switch again to cycle its operation. If the problem persists, the system should be serviced.
NAV2 RMT XFR – NAV2 remote transfer key is stuck.	
MANIFEST– NAV1 software mismatch, communication halted.	NAV1 and/or NAV2 software mismatch. The G1000 system should be serviced.
MANIFEST– NAV2 software mismatch, communication halted.	

GIA 63W MESSAGE ADVISORIES (CONT.)

Message	Comments
G/S1 FAIL – G/S1 is inoperative.	A failure has been detected in glideslope receiver 1 and/or receiver 2. The system should be serviced.
G/S2 FAIL – G/S2 is inoperative.	
G/S1 SERVICE – G/S1 needs service. Return unit for repair.	A failure has been detected in glideslope receiver 1 and/or receiver 2. The receiver may still be available. The system should be serviced when possible.
G/S2 SERVICE – G/S2 needs service. Return unit for repair.	

GEA 71 MESSAGE ADVISORIES

Message	Comments
GEA1 CONFIG – GEA1 config error. Config service req'd.	The GEA1 configuration settings do not match those of backup configuration memory. The system should be serviced.
MANIFEST – GEA1 software mismatch, communication halted.	The #1 GEA 71 has incorrect software installed. The system should be serviced.

GTX 33/33D MESSAGE ADVISORIES

Message	Comments
XPDR1 CONFIG – XPDR1 config error. Config service req'd.	The transponder configuration settings do not match those of backup configuration memory. The system should be serviced.
XPDR2 CONFIG – XPDR2 config error. Config service req'd.	The transponder configuration settings do not match those of backup configuration memory. The system should be serviced.
MANIFEST – GTX1 software mismatch, communication halted.	The transponder has incorrect software installed. The system should be serviced.
MANIFEST – GTX2 software mismatch, communication halted.	The transponder has incorrect software installed. The system should be serviced.
XPDR1 SRVC – XPDR1 needs service. Return unit for repair.	The #1 transponder should be serviced when possible.

GTX 33/33D MESSAGE ADVISORIES (CONT.)

Message	Comments
XPDR2 SRVC – XPDR2 needs service. Return unit for repair.	The #2 transponder should be serviced when possible.
XPDR1 FAIL – XPDR1 is inoperative.	There is no communication with the #1 transponder.
XPDR2 FAIL – XPDR2 is inoperative.	There is no communication with the #2 transponder.

GRS 77 MESSAGE ADVISORIES

Message	Comments
AHRS1 TAS – AHRS1 not receiving valid airspeed.	The #1 AHRS is not receiving true airspeed from the air data computer. The AHRS relies on GPS information to augment the lack of airspeed. The system should be serviced.
AHRS2 TAS – AHRS2 not receiving valid airspeed.	The #2 AHRS is not receiving true airspeed from the air data computer. The AHRS relies on GPS information to augment the lack of airspeed. The system should be serviced.
AHRS1 GPS – AHRS1 using backup GPS source.	The #1 AHRS is using the backup GPS path. Primary GPS path has failed. The system should be serviced when possible.
AHRS2 GPS – AHRS2 using backup GPS source.	The #2 AHRS is using the backup GPS path. Primary GPS path has failed. The system should be serviced when possible.
AHRS1 GPS – AHRS1 not receiving any GPS information.	The #1 AHRS is not receiving any or any useful GPS information. Check AFMS limitations. The system should be serviced.
AHRS2 GPS – AHRS2 not receiving any GPS information.	The #2 AHRS is not receiving any or any useful GPS information. Check AFMS limitations. The system should be serviced.
AHRS1 GPS – AHRS1 not receiving backup GPS information.	The #1 AHRS is not receiving backup GPS information. The system should be serviced.

GRS 77 MESSAGE ADVISORIES (CONT.)

Message	Comments
AHRS2 GPS – AHRS2 not receiving backup GPS information.	The #2 AHRS is not receiving backup GPS information. The system should be serviced.
AHRS1 GPS – AHRS1 operating exclusively in no-GPS mode.	The #1 AHRS is operating exclusively in no-GPS mode. The system should be serviced.
AHRS2 GPS – AHRS2 operating exclusively in no-GPS mode.	The #2 AHRS is operating exclusively in no-GPS mode. The system should be serviced.
AHRS MAG DB – AHRS magnetic model database version mismatch.	The #1 AHRS and #2 AHRS magnetic model database versions do not match.
AHRS1 SRVC – AHRS1 Magnetic-field model needs update.	The #1 AHRS earth magnetic field model is out of date. Update magnetic field model when practical.
AHRS2 SRVC – AHRS2 Magnetic-field model needs update.	The #2 AHRS earth magnetic field model is out of date. Update magnetic field model when practical.
GEO LIMITS – AHRS1 too far North/South, no magnetic compass.	The aircraft is outside geographical limits for approved AHRS operation. Heading is flagged as invalid.
GEO LIMITS – AHRS2 too far North/South, no magnetic compass.	
MANIFEST – GRS1 software mismatch, communication halted.	The #1 AHRS has incorrect software installed. The system should be serviced.
MANIFEST – GRS2 software mismatch, communication halted.	The #2 AHRS has incorrect software installed. The system should be serviced.

GMU 44 MESSAGE ADVISORIES

Message	Comments
HDG FAULT – AHRS1 magnetometer fault has occurred.	A fault has occurred in the #1 GMU 44. Heading is flagged as invalid. The AHRS uses GPS for backup mode operation. The system should be serviced.
HDG FAULT – AHRS2 magnetometer fault has occurred.	A fault has occurred in the #2 GMU 44. Heading is flagged as invalid. The AHRS uses GPS for backup mode operation. The system should be serviced.

GMU 44 MESSAGE ADVISORIES (CONT.)

Message	Comments
MANIFEST – GMU1 software mismatch, communication halted.	The GMU 44 has incorrect software installed. The system should be serviced.
MANIFEST – GMU2 software mismatch, communication halted.	

GDL 69A MESSAGE ADVISORIES

Message	Comments
GDL69 CONFIG – GDL 69 config error. Config service req'd.	GDL 69 configuration settings do not match those of backup configuration memory. The system should be serviced.
GDL69 FAIL – GDL 69 has failed.	A failure has been detected in the GDL 69. The receiver is unavailable. The system should be serviced
MANIFEST – GDL software mismatch, communication halted.	The GDL 69 has incorrect software installed. The system should be serviced.

GWX 68 ALERT MESSAGES

Message	Comments
GWX CONFIG – GWX config error. Config service req'd.	GWX 68 configuration settings do not match those of the GDU configuration. The system should be serviced.
GWX FAIL – GWX is inoperative.	The GDU is not receiving status packet from the GWX 68 or the GWX 68 is reporting a fault. The GWX 68 radar system should be serviced.
GWX SERVICE – GWX needs service. Return unit for repair.	A failure has been detected in the GWX 68. The GWX 68 may still be usable.
MANIFEST – GWX software mismatch, communication halted.	The GWX 68 has incorrect software installed. The system should be serviced.
WX ALERT – Possible severe weather ahead.	Possible severe weather detected within +/- 10 degrees of the aircraft heading at a range of 80 to 320 nm.

GDC 74A MESSAGE ADVISORIES

Message	Comments
ADC1 ALT EC – ADC1 altitude error correction is unavailable.	GDC1 or GDC2 is reporting that the altitude error correction is unavailable.
ADC2 ALT EC – ADC2 altitude error correction is unavailable.	
ADC1 AS EC – ADC1 airspeed error correction is unavailable.	GDC1 or GDC2 is reporting that the airspeed error correction is unavailable.
ADC2 AS EC – ADC2 airspeed error correction is unavailable.	
MANIFEST – GDC1 software mismatch, communication halted.	The GDC 74A has incorrect software installed. The system should be serviced.
MANIFEST – GDC2 software mismatch, communication halted.	

GCU 476 MESSAGE ADVISORIES

Message	Comments
GCU CNFG – GCU Config error. Config service req'd.	GCU 476 configuration settings do not match those of backup configuration memory. The system should be serviced.
GCU FAIL – GCU is inoperative.	A failure has been detected in the GCU 476. The GCU 476 is unavailable.
MANIFEST – GCU software mismatch, communication halted.	The GCU 476 has incorrect software installed. The system should be serviced.
GCU KEYSTK – GCU [key name] Key is stuck.	A key is stuck on the GCU 476 bezel. Attempt to free the stuck key by pressing it several times. The system should be serviced if the problem persists.

GSR 56 MESSAGE ADVISORIES

Message	Comments
GSR1 FAIL – GSR1 has failed.	A failure has been detected in the #1 GSR 56. The system should be serviced.

GMC 710 MESSAGE ADVISORIES

Message	Comments
GMC CONFIG – GMC Config error. Config service req'd.	Error in the configuration of the GMC 710.
GMC FAIL – GMC is inoperative.	A failure has been detected in the GMC 710. The GMC 710 is unavailable.
MANIFEST – GMC software mismatch. Communication halted.	The GMC 710 has incorrect software installed. The system should be serviced.
GMC KEYSTK – GMC [key name] Key is stuck.	A key is stuck on the GMC 710 bezel. Attempt to free the stuck key by pressing it several times. The system should be serviced if the problem persists.

MISCELLANEOUS MESSAGE ADVISORIES

Message	Comments
FPL WPT LOCK – Flight plan waypoint is locked.	Upon power-up, the system detects that a stored flight plan waypoint is locked. This occurs when an navigation database update eliminates an obsolete waypoint. The flight plan cannot find the specified waypoint and flags this message. This can also occur with user waypoints in a flight plan that is deleted. Remove the waypoint from the flight plan if it no longer exists in any database, Or update the waypoint name/identifier to reflect the new information.
FPL WPT MOVE – Flight plan waypoint moved.	The system has detected that a waypoint coordinate has changed due to a new navigation database update. Verify that stored flight plans contain correct waypoint locations.
TIMER EXPIRD – Timer has expired.	The system notifies the pilot that the timer has expired.

MISCELLANEOUS MESSAGE ADVISORIES (CONT.)

Message	Comments
DB CHANGE – Database changed. Verify user modified procedures.	This occurs when a stored flight plan contains procedures that have been manually edited. This alert is issued only after an navigation database update. Verify that the user-modified procedures in stored flight plans are correct and up to date.
DB CHANGE – Database changed. Verify stored airways.	This occurs when a stored flight plan contains an airway that is no longer consistent with the navigation database. This alert is issued only after an navigation database update. Verify use of airways in stored flight plans and reload airways as needed.
LOCKED FPL – Cannot navigate locked flight plan.	This occurs when the pilot attempts to activate a stored flight plan that contains locked waypoint. Remove locked waypoint from flight plan. Update flight plan with current waypoint.
WPT ARRIVAL – Arriving at waypoint -[xxxx]	Arriving at waypoint [xxxx], where [xxxx] is the waypoint name.
STEEP TURN – Steep turn ahead.	A steep turn is 15 seconds ahead. Prepare to turn.
INSIDE ARSPC – Inside airspace.	The aircraft is inside the airspace.
ARSPC AHEAD – Airspace ahead less than 10 minutes.	Special use airspace is ahead of aircraft. The aircraft will penetrate the airspace within 10 minutes.
ARSPC NEAR – Airspace near and ahead.	Special use airspace is near and ahead of the aircraft position.
ARSPC NEAR – Airspace near – less than 2 nm.	Special use airspace is within 2 nm of the aircraft position.
APR INACTV – Approach is not active.	The system notifies the pilot that the loaded approach is not active. Activate approach when required.

MISCELLANEOUS MESSAGE ADVISORIES (CONT.)

Message	Comments
SLCT FREQ – Select appropriate frequency for approach.	The system notifies the pilot to load the approach frequency for the appropriate NAV receiver. Select the correct frequency for the approach.
SLCT NAV – Select NAV on CDI for approach.	The system notifies the pilot to set the CDI to the correct NAV receiver. Set the CDI to the correct NAV receiver.
PTK FAIL – Parallel track unavailable: bad geometry.	Bad parallel track geometry.
PTK FAIL – Parallel track unavailable: invalid leg type.	Invalid leg type for parallel offset.
PTK FAIL – Parallel track unavailable: past IAF.	IAF waypoint for parallel offset has been passed.
UNABLE V WPT – Can't reach current vertical waypoint.	The current vertical waypoint can not be reached within the maximum flight path angle and vertical speed constraints. The system automatically transitions to the next vertical waypoint.
VNV – Unavailable. Unsupported leg type in flight plan.	The lateral flight plan contains a procedure turn, vector, or other unsupported leg type prior to the active vertical waypoint. This prevents vertical guidance to the active vertical waypoint.
VNV – Unavailable. Excessive track angle error.	The current track angle error exceeds the limit, causing the vertical deviation to go invalid.
VNV – Unavailable. Excessive crosstrack error.	The current crosstrack exceeds the limit, causing vertical deviation to go invalid.
VNV – Unavailable. Parallel course selected.	A parallel course has been selected, causing the vertical deviation to go invalid.
NON WGS84 WPT – Do not use GPS navigation to [xxxx].	The position of the selected waypoint [xxxx] is not calculated based on the WGS84 map reference datum and may be positioned in error as displayed. Do not use GPS to navigate to the selected non-WGS84 waypoint.

MISCELLANEOUS MESSAGE ADVISORIES (CONT.)

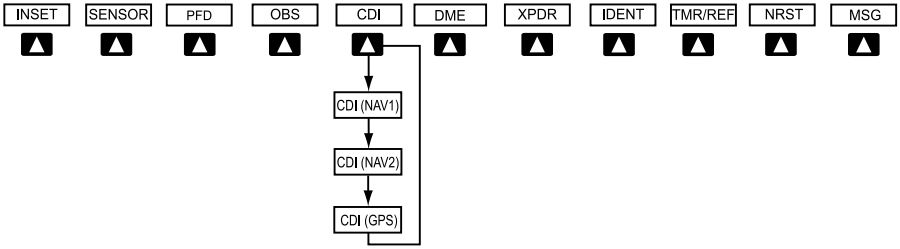
Message	Comments
TRAFFIC FAIL – Traffic device has failed.	The system is no longer receiving data from the traffic system. The traffic device should be serviced.
FAILED PATH – A data path has failed.	A data path connected to the GDU, GSD 41, or the GIA 63/W has failed.
MAG VAR WARN – Large magnetic variance. Verify all course angles.	The GDU's internal model cannot determine the exact magnetic variance for geographic locations near the magnetic poles. Displayed magnetic course angles may differ from the actual magnetic heading by more than 2°.
SVS – SVS DISABLED: Out of available terrain region.	Synthetic Vision is disabled because the aircraft is not within the boundaries of the installed terrain database.
SVS – SVS DISABLED: Terrain DB resolution too low.	Synthetic Vision is disabled because a terrain database of sufficient resolution (9 arc-second or better) is not currently installed.
SCHEDULER [#] – <message>.	Message criteria entered by the user.
COURSE SEL – Current track will not intercept selected course.	The aircraft is flying away from the selected course and will not intercept.
CHECK CRS – Database course for LOC1 / [LOC ID] is [CRS]°.	Selected course for LOC1 differs from published localizer course by more than 10 degrees.
CHECK CRS – Database course for LOC2 / [LOC ID] is [CRS]°.	Selected course for LOC2 differs from published localizer course by more than 10 degrees.
[PFD1, PFD2, or MFD1] CARD 1 REM – Card 1 was removed. Reinsert card.	The SD card was removed from the top card slot of the specified PFD or MFD. The SD card needs to be reinserted.
[PFD1, PFD2, or MFD1] CARD 2 REM – Card 2 was removed. Reinsert card.	The SD card was removed from the bottom card slot of the specified PFD or MFD. The SD card needs to be reinserted.
[PFD1, PFD2, or MFD1] CARD 1 ERR – Card 1 is invalid.	The SD card in the top card slot of the specified PFD or MFD contains invalid data.

MISCELLANEOUS MESSAGE ADVISORIES (CONT.)

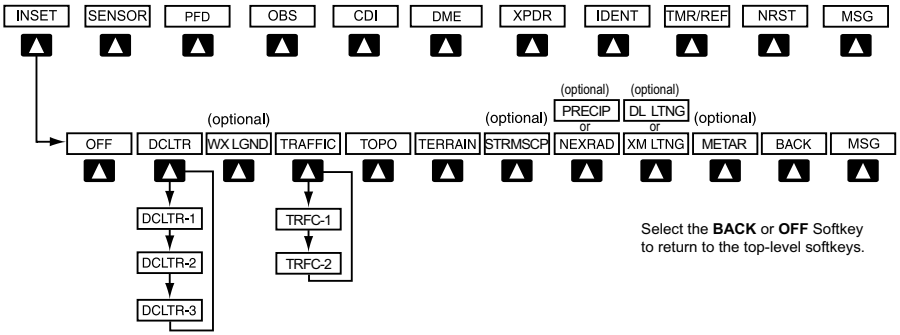
Message	Comments
[PFD1, PFD2, or MFD1] CARD 2 ERR – Card 2 is invalid.	The SD card in the bottom card slot of the specified PFD or MFD contains invalid data.
SPD KEY DISABLED - The SPD key is disabled for this model aircraft.	The **SPD** Key on GMC 710 has no function in this aircraft model.
REGISTER GFDS - Data services are inoperative, register w/GFDS	The GSR 56 is not registered with Garmin Flight Data Services, or its current registration data has failed authentication

APPENDIX

PFD SOFTKEY MAP



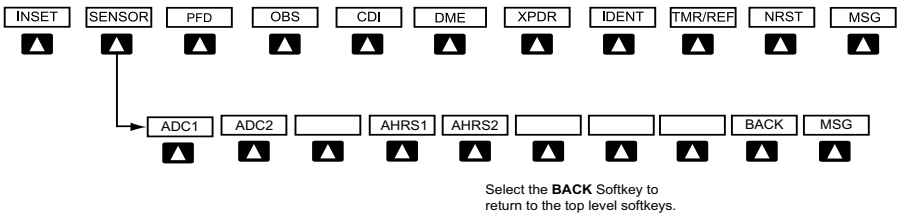
Top Level PFD Softkeys



Inset Map Softkeys

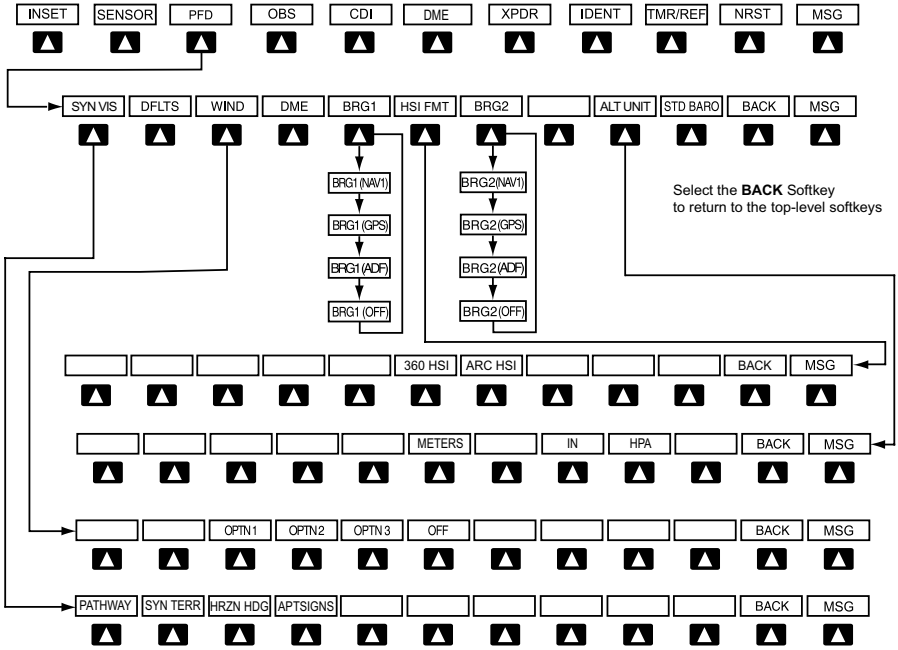
Level 1	Level 2	Description
INSET		Displays Inset Map in PFD lower left corner
	OFF	Removes Inset Map
	DCLTR (3)	Selects desired amount of map detail; cycles through declutter levels: DCLTR (No Declutter): All map features visible DCLTR-1: Declutters land data DCLTR-2: Declutters land and SUA data DCLTR-3: Removes everything except the active flight plan

Level 1	Level 2	Description
	WX LGND	Displays icon and age on the Inset Map for the selected weather products (optional)
	TRAFFIC	Cycles through traffic display options: TRFC-1: Traffic displayed on inset map TRFC-2: Traffic Map Page is displayed in the inset map window
	TOPO	Displays topographical data (e.g., coastlines, terrain, rivers, lakes) and elevation scale on Inset Map
	TERRAIN	Displays terrain information on Inset Map
	STRMSCP	Select to display the Stormscope lightning data on the Inset Map (within a 200 nm radius of the aircraft)
	NEXRAD **or** **PRECIP**	Displays NEXRAD weather and coverage information on the Inset Map (optional) Displays Worldwide Weather precipitation on the Inset Map (optional)
	XM LTNG **or** **DL LTNG**	Displays XM lightning information on the Inset Map (optional) Displays Worldwide Weather lightning information on the Inset Map (optional)
	METAR	Displays METAR flags on airport symbols shown on the Inset Map (optional)



Sensor Softkeys

Level 1	Level 2	Level 3	Description
SENSOR			Displays softkeys for selecting the #1 and #2 AHRS and Air Data Computers
	ADC1		Selects the #1 Air Data Computer
	ADC2		Selects the #2 Air Data Computer
	AHRS1		Selects the #1 AHRS
	AHRS2		Selects the #2 AHRS

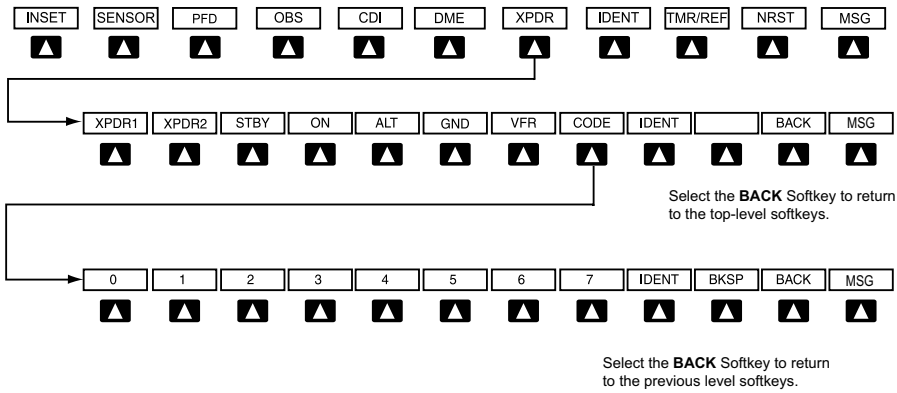


PFD Configuration Softkeys

Level 1	Level 2	Level 3	Description
PFD			Displays second-level softkeys for additional PFD configurations
	SYN VIS		Displays the softkeys for enabling or disabling Synthetic Vision features

Level 1	Level 2	Level 3	Description
		PATHWAY	Displays rectangular boxes representing the horizontal and vertical flight path of the active flight plan
		SYN TERR	Enables synthetic terrain depiction
		HRZN HDG	Displays compass heading along the Zero-Pitch line
		APTSIGNS	Displays position markers for airports within approximately 15 nm of the current aircraft position. Airport identifiers are displayed when the airport is within approximately 9 nm.
	DFLTS		Resets PFD to default settings, including changing units to standard
	WIND		Displays softkeys to select wind data parameters
		OPTN 1	Wind direction arrows with headwind/ tailwind and crosswind components
		OPTN 2	Wind direction arrow and speed
		OPTN 3	Wind direction arrow with headwind/ tailwind and crosswind components
		OFF	Information not displayed
	DME		Select to display the DME information window
	BRG1		Cycles the Bearing 1 Information Window through NAV1 or GPS/ waypoint identifier and GPS-derived distance information.
	HSI FRMT		Displays the HSI formatting softkeys
		360 HSI	Displays the HSI in a 360 degree format
		ARC HSI	Displays the HSI in an arc format

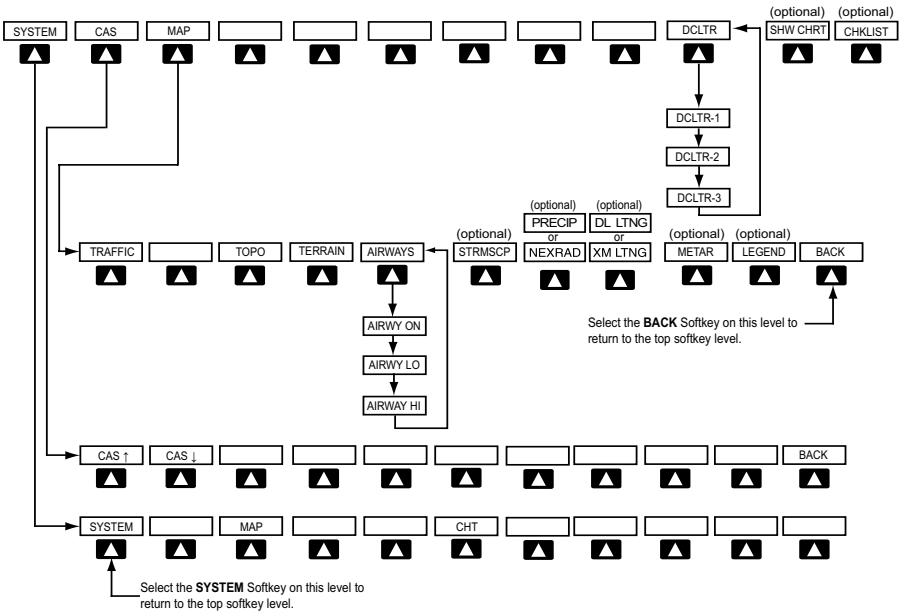
Level 1	Level 2	Level 3	Description
	BRG2		Cycles the Bearing 2 Information Window through NAV2 or GPS/ waypoint identifier and GPS-derived distance information.
	ALT UNIT		Displays softkeys for setting the altimeter and BARO settings to metric units
		METERS	When enabled, displays altimeter in meters
		IN	Select to display the BARO setting as inches of mercury
		HPA	Select to display the BARO setting as hectopacals
	STD BARO		Sets altimeter setting to standard barometric pressure



Transponder Softkeys

Level 1	Level 2	Level 3	Description
DME			Displays the DME Tuning Window
XPDR			Displays transponder mode selection softkeys
	STBY		Selects Standby Mode (transponder does not reply to any interrogations)
	ON		Selects Mode A (transponder replies to interrogations)
	ALT		Selects Mode C – Altitude Reporting Mode (transponder replies to identification and altitude interrogations)
	GND		Manually selects Ground Mode, the transponder does not allow Mode A and Mode C replies, but it does permit acquisition squitter and replies to discretely addressed Mode S interrogations.
	VFR		Automatically enters the VFR code (1200 in the U.S.A. only)
	CODE		Displays transponder code selection softkeys 0-7
		0 — 7	Use numbers to enter code
		BKSP	Removes numbers entered, one at a time
IDENT			Activates the Special Position Identification (SPI) pulse for 18 seconds, identifying the transponder return on the ATC screen
TMR/REF			Displays Timer/References Window
NRST			Displays Nearest Airports Window
MSG			Displays Message Window

MFD SOFTKEY MAP



MFD Softkeys

Level 1	Level 2	Description
SYSTEM		Displays the SYS-CHT Page
	CHT	Reserved for future use
CAS		Displays the scroll up and scroll down softkeys.
	CAS ↑	Scroll up (Displayed only when a sufficient number of items are displayed in the Crew Alerting System Display to warrant scrolling)
	CAS ↓	Scroll down (Displayed only when a sufficient number of items are displayed in the Crew Alerting System Display to warrant scrolling)
MAP		Enables second-level Navigation Map softkeys
	TRAFFIC	Displays traffic information on Navigation Map

Level 1	Level 2	Description
	TOPO	Displays topographical data (e.g., coastlines, terrain, rivers, lakes) and elevation scale on Navigation Map
	TERRAIN	Displays terrain information on Navigation Map
	AIRWAYS	Displays airways on the map; cycles through the following: AIRWAYS: No airways are displayed AIRWY ON: All airways are displayed AIRWY LO: Only low altitude airways are displayed AIRWY HI: Only high altitude airways are displayed
	STRMSCP	Select to display the Stormscope lightning data on the Inset Map (within a 200 nm radius of the aircraft)
	NEXRAD **or** **PRECIP**	Displays NEXRAD weather and coverage information on the Navigation Map (optional) Displays Worldwide Weather precipitation on the Navigation Map (optional)
	XM LTNG **or** **DL LTNG**	Displays XM lightning information on the Navigation Map (optional) Displays Worldwide Weather lightning information on the Navigation Map (optional)
	METAR	Displays METAR flags on airport symbols shown on the Navigation Map (optional)
	LEGEND	Displays the legend for the selected weather products. Available only when NEXRAD, XM LTNG, and/or METAR softkeys are selected.
	BACK	Returns to top-level softkeys

Level 1	Level 2	Description
DCLTR (3)		Selects desired amount of map detail; cycles through declutter levels: DCLTR (No Declutter): All map features visible DCLTR-1: Declutters land data DCLTR-2: Declutters land and SUA data DCLTR-3: Removes everything except the active flight plan
SHW CHRT		When available, displays airport and terminal procedure charts (if equipped)
CHKLIST		When available, displays checklists (if equipped)

LOADING UPDATED DATABASES

CAUTION: *Never disconnect power to the system when loading a database. Power interuption during the database loading process could result in maintenance being required to reboot the system.*

NOTE: *Garmin requests that the flight crew report any observed discrepancies related to database information. These discrepancies could come in the form of an incorrect procedure; incorrectly identified terrain, obstacles and fixes; or any other displayed item used for navigation or communication in the air or on the ground. Go to FlyGarmin.com and select "Aviation Data Error Report.*

In some cases it may be necessary to obtain an unlock code from Garmin in order to make the database product functional. It may also be necessary to have the system configured by a Garmin authorized service facility in order to use some database features.

If an error occurs during synchronization, an error message will be displayed, followed by the affected display in the Sync Status section of the Database Window. If synchronization completes on one display, but an error occurs on another, the error message will be displayed with the affected displays listed after it. When an error message is displayed, the problem must be corrected before synchronization can be completed. A power cycle is required to restart synchronization when 'Card Full' or 'Err' is shown.

Error Message	Description
Canceled	An active synchronization has been canceled using the **SYNC DBS** Softkey
Card Full	SD card does not contain sufficient memory
Err	Displayed for all other errors that may cause the synchronization process to be halted
Timeout	System timed-out prior to the database transfer completing

Loading Garmin Database Updates

1) With system power OFF, remove the MFD database card from the bottom card slot of the MFD.

2) Update the Garmin databases on the MFD card.

3) Insert the MFD database card into the bottom card slot of the MFD.

4) Apply power to the system, check that the databases are initialized and displayed on the power-up screen. When updating the terrain and FliteCharts databases, a 'Verifying' message may be seen. If this message is present, wait for the system to finish loading before proceeding to step 5.

5) Acknowledge the Power-up Page agreement by pressing the **ENT** Key or the right most softkey.

6) Turn the large **FMS** Knob to select the AUX Page group on the MFD.

7) Turn the small **FMS** Knob to select the System Status Page.

8) Make sure the **SYNC DBS** Softkey is in the enabled state.

9) Monitor the Sync Status in the Database Window. Wait for all databases to complete synching, indicated by 'Complete' being displayed.

10) Remove and reapply power to the system.

11) Turn the large **FMS** Knob to select the AUX Page group on the MFD.

12) Turn the small **FMS** Knob to select the System Status Page.

13) Press the Display Database Selection Softkey to show database information for each display (**MFD1 DB**, **PFD1 DB, PFD2 DB**). Verify the correct database cycle information is shown for each database for each display.

Loading the Jeppesen Navigation Database as the Active Navigation Database

The Jeppesen Navigation Database that is loaded to internal memory as the active database will be used by the system.

NOTE: *Loading the Jeppesen navigation database as the active database prior to its effective date will result in the expiration date on the power-up screen and the effective date on the AUX-System Status Page being displayed in yellow.*

1) With the system OFF, insert the SD card containing the new navigation database version into the top card slot of the display (PFD1, PFD2, or MFD) to be updated (label of SD card facing left).

2) Turn the system ON. A prompt similar to the following is displayed in the upper left corner of the display:

3) Press the **NO** Softkey to proceed to loading the active database.

4) A prompt similar to the following is displayed. Press the **YES** Softkey to update the active navigation database.

5) After the update completes, the display starts in normal mode.

6) Turn the system OFF and remove the SD card from the top card slot.

7) Repeat steps 1 through 6 for the other display (PFD or MFD).

8) Apply power to the system and press the **ENT** Key to acknowledge the startup screen.

9) Turn the large **FMS** Knob to select the AUX Page group on the MFD.

10) Turn the small **FMS** Knob to select the System Status Page.

11) Press the Display Database Selection Softkey to show active navigation database information for each display (**MFD1 DB**, **PFD1 DB, PFD2 DB**). Verify the correct active navigation database cycle information is shown for each display.

NOTE: *After the navigation database is loaded or copied, the top SD card may be removed.*

Loading the Jeppesen Navigation Database as the Standby Navigation Database

The purpose of the Standby Navigation Database is to allow the loading of the next cycle of the Jeppesen Navigation Database to the bottom SD card, prior to its effective date. (The Jeppesen Navigation Database is available from Jeppesen seven days prior to its effective date.)

NOTE: *After the navigation database is loaded or copied, the top SD card may be removed.*

1) With the system OFF, insert the SD card containing the new navigation database version into the top card slot of the MFD.
2) Verify that an SD card is inserted in the bottom slot of each PFD and the MFD.
3) Turn the system ON. A prompt is displayed.
4) Press the **YES** Softkey. The navigation database is copied to the SD card in the bottom card slot of the MFD.
5) After the navigation database files are copied to the bottom SD card, press any key to continue, as instructed.
6) Again, press any key to continue as instructed on the display.
7) Press the **NO** Softkey. The display now starts in normal mode. Since the database effective date is not yet valid, it should not be loaded as the active database. The display now starts in normal mode. Do not remove power while the display is starting.
8) Press the **ENT** Key to acknowledge the startup screen.
9) Turn the large **FMS** Knob to select the AUX Page group on the MFD.
10) Turn the small **FMS** Knob to select the System Status Page.
11) The new database is copied to the SD card in the bottom card slot of each PFD. Progress can be monitored in the SYNC STATUS field. When copying is finished, 'Complete' is displayed.

NOTE: *During the synchronization process, version differences between standby navigation databases will exist. This will result in the system displaying a 'DB Mismatch' alert for the standby navigation databases. This alert will remain until the next power cycle.*

12) Turn system power OFF.

13) Remove the SD card from the top card slot of the MFD.

14) Turn system power ON.

15) Press the **ENT** Key to acknowledge the startup screen.

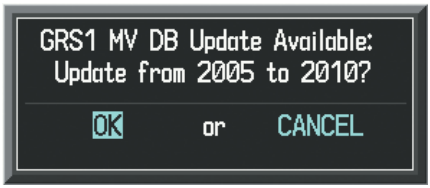
16) Turn the large **FMS** Knob to select the AUX Page group on the MFD.

17) Turn the small **FMS** Knob to select the System Status Page.

18) Press the Display Database Selection Softkey to show standby navigation database information for each display (**MFD1 DB**, **PFD1 DB, PFD2 DB**). Verify the correct standby navigation database cycle information is shown for each display.

Magnetic Field Variation Database Update

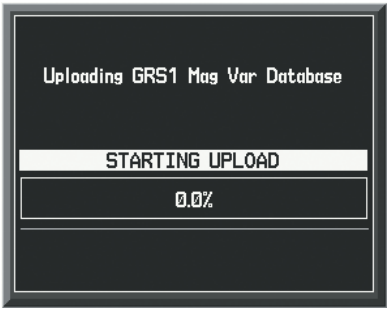
At startup, the system compares this version of the MV DB with that presently being used by each AHRS (GRS1 and GRS2). If the system determines the MV DB needs to be updated, a prompt is displayed on the Navigation Map Page, as shown in Figure B-7. Note, in the following example, GRS1 is the first AHRS to indicate an update is available. In actuality, this is dependent on which AHRS is the first to report status to the system. GRS2 may be displayed before GRS1. The order is not important, only that both AHRS be updated.



GRS1 Magnetic Field Variation Database Update Prompt

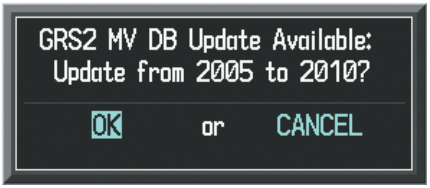
Loading the magnetic field variation database update:

1) With 'OK' highlighted, as shown in the previous figure, press the **ENT** Key on the MFD. A progress monitor is displayed as shown in the following figure.



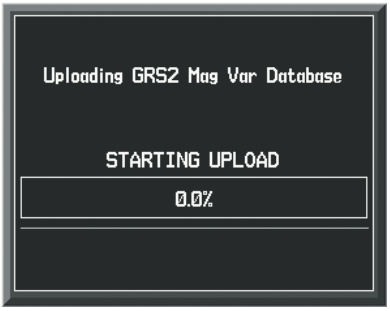
Uploading Database to GRS1

2) When the upload is complete, the prompt for the next GRS upload is displayed, as seen in the following figure.



GRS2 Magnetic Field Variation Database Update Prompt

3) With 'OK' highlighted, press the **ENT** Key on the MFD. A progress monitor is displayed as shown in the following figure. When the upload is complete, the system is ready for use.



Uploading Database to GRS2

Blank Page

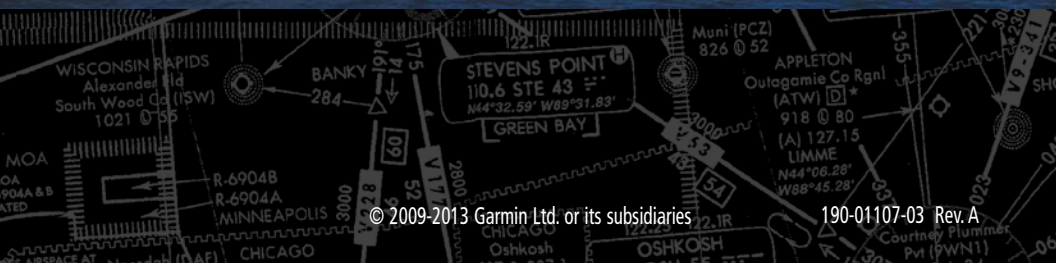
Garmin International, Inc.
1200 East 151st Street
Olathe, KS 66062, U.S.A.
p: 913.397.8200 f: 913.397.8282

Garmin AT, Inc.
2345 Turner Road SE
Salem, OR 97302, U.S.A.
p: 503.391.3411 f: 503.364.2138

Garmin (Europe) Ltd
Liberty House, Bulls Copse Road
Hounsdown Business Park
Southampton, SO40 9RB, U.K.
p: 44/0870.8501241 f: 44/0870.8501251

Garmin Corporation
No. 68, Jangshu 2nd Road
Shijr, Taipei County, Taiwan
p: 886/2.2642.9199 f: 886/2.2642.9099

www.garmin.com



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